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## AS TO MACHINE-GROWN RUBBER.

**G**REAT INTEREST has developed of late in American-grown rubber. This has chiefly centered about guayule, although other shrubs and plants that contain caoutchouc, and grow in the temperate zone, are receiving attention. Of them all so far, guayule cultivation is the only one the success of which seems assured. A spectacular feature concerning it is the profit per acre that analysis of the project develops.

For example, a comparison of *Hevea* and guayule profits at the time of the historic rubber craze would be about as follows: *Hevea* then brought \$2 a pound and the profit was about \$400 per acre, while guayule sold at \$1 a pound and if cultivated would show a profit of more than \$16,000 per acre. Or basing the comparison on normal costs and prices, *Hevea* profits would stand at, say, \$136 an acre, and cultivated guayule at over \$6,000 per acre.

These figures, to be sure, do not include the cost of installing the plantation plant, extraction plant, patent royalties, etc. But cutting them in half to cover these items, there remains a profit of \$3,000 an acre, which is astounding and almost unbelievable.

There is, however, an important fact to be kept before those who plan to start in this line. It is a far more intricate business than *Hevea*-growing and lack of knowledge in a dozen different essentials will spell disaster. There is also the high cost of installation of the plantation and the extraction factory. To prepare, irrigate and plant enough land to keep a 10-ton mill going would cost roughly \$500,000, and the mill at least \$200,000. In other words, it is a million-dollar undertaking and the small operator has no great chance. With the expansion of business, however, it is perfectly possible that central factories will be installed for extraction and that guayule-growers will ship their product in as the beet-growers do theirs to the sugar centrals.

As to the grade of rubber produced, plant analysis has found certain types of shrub that carry a high grade of rubber, and these have been hybridized with plants that contain percentages of 20 per cent or more of rubber. A better grade of gum than the Mexican product is therefore in prospect in the cultivated guayule rubber, some day to figure largely in our markets.

## INCREASE IN RUBBER GOODS EXPORTS.

**T**HE American rubber manufacturer is so accustomed to big things that he remains unimpressed by present accomplishments that formerly would attract admiring attention. A case in point is the great expansion in the export of rubber goods. To cite a few figures, in 1913-14 mechanical rubber goods exports totalled \$2,372,887. In 1917-18 they expanded to \$4,578,396. Rubber footwear in the same periods were \$1,113,844 and expanded to \$5,774,341. Tires grew from \$4,108,294 to \$15,108,294. Even druggists' sundries increased from \$200,000 to \$884,245.

These are great increases. Part of them, as boots and tires, are directly due to the unusual demands of the war, but only in part. The burning question is, whether or not we can duplicate or perhaps surpass these records.

## THE OLD MAN MAKES GOOD.

**P**RIOR to our entrance into the Great War, the United States was a young man's country. Manufacturers, big and little, were disciples of Dr. Osler to an extreme degree. A man over thirty-five was viewed with suspicion. The general belief was that at thirty-six he began to "go stale." Gray hair was not a "crown of glory" but a certificate of dismissal. When, however, the youngsters joyously gave up their positions to smite the Hun, the older men took their places. Not only did they take them, they filled them, and so well did they prove their value that the age limit has passed into the discard. The general feeling is that older men, even if

slower (sometimes they are faster), make fewer mistakes and in the end accomplish just as much as the kids. The older man possesses experience, judgment and balance, the younger man energy, optimism and enthusiasm. All of these attributes have great industrial value.

#### RUBBER FACTORY FIRES.

**A**RE rubber factories specially hazardous insurance risks? Surely they are subject to the general run of fire causes in manufacturing establishments, and besides these, a special risk in the use of volatile solvents which throw off inflammable vapors. Indeed, a noted authority, after investigation of a large number of fires occurring in rubber mills, claims that over 70 per cent of those where the sources were discovered, were from the accidental ignition of these liquids, or the vapors arising from them.

The most common cause is the combination of vapor from these solvents, and an electric spark, in a dry atmosphere. The greater proportion of them are at the spreading machines, where friction produces static electricity, which, being discharged, explodes the vapor and starts the resultant fire.

Cases are on record where the machine-tenders are themselves the generators of static electricity, which, emanating from them, induces the explosion. While accidents from this cause are far from common, several fires have been laid to this peculiar phenomenon.

Many fires are the result of carelessness on the part of workmen, whose very familiarity with these dangers has resulted in almost criminal heedlessness. Smoking in vapor-laden rooms, or where finely divided inflammable dust floats in the atmosphere, the striking of matches, the carrying of lighted lanterns, are known causes of rubber-mill fires. Safety first means humidifying rooms where vapors form, thorough electrical grounding of machines, and the prohibition of carelessness on the part of workmen.

#### COPYRIGHTING INDIA RUBBER.

**A**CERTAIN SHOCK is experienced by English-speaking rubber men because of the action of the India Rubber, Gutta Percha and Telegraph Works Co., Limited, in copyrighting the words "india rubber" in Argentina. The Silvertown company, one of the largest in England, has always been regarded as not only very progressive but eminently fair. Its action has therefore caused much comment and considerable indignation. Guessing at its reasons it may be that as it started the first rubber factory in Argentina it felt that the trade of that country belonged to it though preemption. Or it may be that the big sign fronting its works in Buenos Aires which bears the words "India Rubber" (rather remarkable in a Spanish-speaking country) led it to feel that it had a proprietary right in the words as far as Argentina was concerned. A more reasonable surmise,

however, is that in the face of increasing competition it put a local attorney at work securing Argentine copyrights on all of its trade-names, and he supposed India rubber to be one of them. At all events it is not likely that the copyright will stand nor is it supposable that the Silvertown company would desire it to.

#### HOMER E. SAWYER AS PRESIDENT.

**W**ITH the New Year comes a new president of The Rubber Association, one widely known and universally esteemed. Mr. Sawyer served his apprenticeship in New England at the great factories of the Boston Rubber Shoe Co. When that company merged with the United States Rubber Co., he was a vital factor in both the selling organization and the manufacturing field, in both of which he was thoroughly at home. In spite of many responsibilities Mr. Sawyer, from the beginning, has always been active in The Rubber Association. His familiarity with its history and development, his broad knowledge of the whole rubber business, his wide acquaintance, together with his genial efficiency, make him an ideal leader.

AN IMPORTANT BRITISH MANUFACTURER OF TIRE-repair machinery, in protest against the word vulcanizer as applied to the man who operates such a machine, has coined a new word. Henceforth the vulcanizer, the man, is to be a "vulcanist." We are not sure that this is wise. If such word-vaccination becomes the fashion, the rubber trade may see instead of washer, washist; mixer, mixist; calender man, calendist; boiler man, Bolshevik.

Why not abandon the ists and turn to the eers? Thus an engine-driver is an engineer. Why not make a vulcanizer operator a vulcaneer? The term is new, easy to remember, essentially masculine, and even romantic.

INDUSTRIAL ASSOCIATIONS IN FRANCE ARE DEMANDING that a committee of technicians be appointed in each industry and sent to indicate on the spot such industrial material as may replace plants destroyed or looted in the regions invaded by the German authorities.

This practical suggestion is important, for it would enable French industrialists, by receiving in kind at least, the equivalent of destroyed or looted plants, to get to work more rapidly and to meet the competition prepared in advance by the enemy.

This is exactly what this paper has been suggesting editorially ever since the armistice was signed. It is the only open road to reparation.

THIRTY MILLION PNEUMATIC TIRES FOR 1919 IS THE confident prediction of the big tire makers. This is very many and means much rubber. It is, however, a sane prophecy. And, once northern Europe is pacified, other millions will be called for. Indeed, once the League of Nations is an accomplished fact, and peace really comes, rubber producers and tire manufacturers, the world over, will have all they can do to fill orders.

## Victory Banquet.

### Nineteenth Anniversary Banquet of The Rubber Association of America, Inc.

**S**URPASSING any previous function in colorful setting, exquisite menu, pertinent addresses and delightful entertainment, the banquet at the Waldorf-Astoria on the evening of January 16, 1919, was indeed a triumph. Preceding the dinner the members and guests assembled in the reception rooms with social informality, meeting old acquaintances and making new ones. When the doors of the ballroom were opened eight hundred fifty banqueters took their places while the orchestra played popular marches. A handsome program and a small silk American flag were presented to each member and guest.

American flags in artistic profusion decorated the walls and balconies of the ballroom, symbolizing the Army, while the columns were draped with American jacks, emblems of the Navy. Prominently displayed over the rostrum was a diadem of flags of the Allies with Old Glory in the center, and below, a silk banner bearing the great seal of the United States, flanked by the coats of arms of the United States, the State, and the city of New York.

During the dinner patriotic and popular music by the orchestra gave zest to the excellent menu, and when the last course was finished the toastmaster, Bertram G. Work, called the meeting to order. By this time the balconies were filled with ladies who had been invited to enjoy the speeches and vaudeville entertainment that concluded the program.

After "The Star-Spangled Banner" had been sung in chorus, the toastmaster announced that he had the unexpected pleasure of introducing a man of national reputation who had just arrived from abroad and would say a few words. He proved to be a vaudeville performer with a startling resemblance to President Wilson, and his witty monolog caused much laughter and left the audience in rare good humor. The cabaret vaudeville that followed the speeches was thoroughly enjoyed by everyone.

#### PRESIDENT WORK'S REPORT.

I will take a few moments for a few words. With a preamble of a year ago I had no nerve and I had a pretty good voice. This year I have got the nerve, but I have lost my voice.

The activities of our Association during the past year have been vital and continuous. They have made history for the industry, and are written into the annals of the Association. You are all familiar with the details of the year's work, so a review of them this evening is unnecessary. The actual work of your War Service Committee ceased shortly after the signing of the armistice, and this afternoon the committee was officially discharged by your board of directors. In behalf of this ex-War Service Committee, I wish to express the warmest thanks and appreciation for the loyal support of the industry which, as is generally known, was given at no inconsiderable sacrifice. I also wish to express my personal appreciation and thanks to all members of the War Service Committee for their loyal support and cooperation. This committee held 57 meetings during the year, and it is a magnificent tribute to the industry that a body of men composed of highly competitive elements at no time allowed their individual interests to interfere with the one object for which they were responsible to our country and to the industry. Great credit is due to the chairmen and members of the divisional committees. These men spent nights in travel and days in conference, time after time during the year. They unselfishly contributed to the cause, and were actuated only by the thought that our industry must do its part in winning the war.

The work of the Central Committee was tense, but only for the duration of the war, while the work of the Divisional Committees will live after them, having been transfused into permanent bodies representative of each branch of the industry.

#### WAR INDUSTRIES BOARD APPRECIATES LOYALTY OF THE RUBBER INDUSTRY.

We hoped to have with us to-night some other members of the War Industries Board, but other engagements made it impossible. Mr. Baruch writes under date of December 18th:

#### WAR INDUSTRIES BOARD, WASHINGTON, D. C.

My dear Mr. Work:

I am deeply appreciative of the honor you do me in inviting me to be the guest of The Rubber Association on January 16th. I should like to be able to take that opportunity to express in person my appreciation of the loyal cooperation the rubber industry has given the War Industries Board throughout its period of service, but it is impossible for me to make any definite engagements in the near future. With very kind regards,

Very truly yours,  
BERNARD M. BARUCH, Chairman.

As we all know, he is now in Paris. We have with us to-night Mr. Baruch's right-hand man, Mr. Peek, but Mr. Peek came on the condition that he would not be asked to speak. So I cannot break the agreement with him.

Judge Edwin B. Parker writes from Houston, Texas, under date of January 3rd:

#### WAR INDUSTRIES BOARD, WASHINGTON, D. C.

Dear Mr. Work:

I have delayed until now definitely replying to your very thoughtful invitation of the 16th to attend the Victory Banquet of The Rubber Association to take place in New York on the 16th instant. I very much fear my engagements here are such that it will not be possible for me to accept your invitation; but if permissible to do so, I will not definitely decline now. If I find that I can be in New York on that date, you may be sure that I will not permit anything to prevent being with you. I beg to repeat now what I have had occasion to say before, that you and your Committee represented not only your industry, but our Nation, in dealing with the rubber situation during the war, and there was no industry from which our Board received more wholehearted and effective cooperation than yours. Our association will always bring to me pleasant memories.

Cordially yours,  
EDWIN B. PARKER,  
Priorities Commissioner.

Gentlemen, it is also a matter of great regret that Mr. H. T. Dunn, former chief of the rubber section, cannot be with us to-night. He is still suffering from an attack of grippe contracted while in Washington, and aggravated by continuing his work with the War Industries Board when he should have been in bed. We all owe a debt of gratitude to Mr. Dunn for the able and unselfish manner in which he represented our industry in Washington.

#### CONSERVATION AND STANDARDIZATION TO CONTINUE.

The work of conservation, elimination and standardization will be perpetuated by the various divisions of the association. Some were already organized, and others have been organized to take up this work in all matters of divisional interest. The functions heretofore exercised by the Conservation Division of the War Industries Board are to be continued by the Department of Commerce under its industrial cooperative service. While the work of the new service will be voluntary so far as the industries are concerned, our work in this direction can be materially aided and broadened by cooperating with the Department of Commerce.

Secretary Redfield is our honored guest this evening, and has very kindly agreed to outline to us in a general way the proposed work of his department in connection with industries. I take great pleasure in introducing the Secretary of Commerce, William C. Redfield.

#### SECRETARY REDFIELD'S ADDRESS.

Mr. Toastmaster, Ladies and Gentlemen:

We have had two very wonderful examples for all the world to see in these recent months; one of them an example of horrible selfishness. We saw a great and intelligent people, more devoted to science and research than all other nations, given over to the powers of evil and devoting itself to the exploiting of the world for its own glory and profit.

I went, two or three years ago—no, it was more than that; it seems so near—it was seven years ago, I went down the coast of China, looking for an American business house, and found

The Victory Banquet.



NINETEENTH ANNUAL BANQUET OF THE RUBBER ASSOCIATION OF AMERICA, INC., AT THE WALDORF-ASTORIA, JANUARY 16, 1919.

not one all the way from Tokio until I got to Singapore. At Hong Kong, I found a Scotchman who had lived in New York. That was the nearest approach to an American house on all the Chinese coasts. But everywhere, in every port, under the splendid hospitality of the English rule, the German was prospering; and in Hong Kong harbor I lay immediately alongside of the German armored cruiser *Sharnhorst*, now gone to a well-earned grave at the mouth of English cannon.

#### THE SELFISHNESS OF GERMANY.

We saw Germany build up her industries that she might make the world tributary to Germany; for German gain, for German profit, that you and I and all men might so far as possible contribute to the power and the domination of Germany. In the first week of the war our minister at The Hague telegraphed to the President, "Germany means to breakfast in Paris, lunch in London, and dine and spend the night in New York." And you are perfectly familiar with the fact that the Kaiser said long years ago that on the opposite side of the Atlantic without Germany and the German kaiser no one would dare make any high decision. We saw the awful tragedy that ended that dream of selfishness. I trust we have learned the awful lesson that history has again reiterated, this time in our midst. One after another the men and the people that would have ruled the world for their profit have come, have passed their little time upon the stage and gone.

#### THE SACRIFICES OF UNSELFISHNESS.

And we saw here the other thing. I saw it every day these two years past—a vision of great unselfishness, of men having come, forgetting themselves and all the things that men count precious, leaving at home business and personal profit of every kind, and for a trivial compensation or none at all, coming to the seat of government and working without regard to hours or strain in order that their country might defeat that power which sought its overthrow. Be not deceived, my friends. We are escaped as a bird out of the snare of the fowler. He sought what you and I hold dear. It is by the force of the sacrifice of American men that our daughters have not suffered as did those of northern France, that we face readjustment and not reconstruction. Were you an audience of French or Belgian business men where would you go in northern France or Belgium to find your homes? It would seem strange to you to have nowhere to sleep, to find your business stripped and gone, to go back perhaps to your native town unable to find the site where once your dwelling was. That is reconstruction indeed. Beside this your problems and mine are trivial and they are based all through on the willing sacrifice of American business men who have done more in one year to make their government know that the heart of American commerce was true than could have been accomplished in years of talking and pleading.

#### THE INDUSTRIAL POWER OF AMERICA.

For we have seen you in our very midst at work, and we have seen the power of this nation gathered through you into a force that overwhelmed the enemy. A year ago or more a minister of a neutral power was about to leave his post in Washington, and came to bid me farewell, for I knew him as a friend. I knew he was going where he had a German colleague, and I sent a message by him to his German colleague, not formally so, but saying to him something which I knew he would repeat, and it was this:

That he would see a spectacle such as the world had not before witnessed of the unrolling of American industrial power, and that he might watch for it; that it would not be rapid, but it would be as certain as fate, and that whatever we might do with army or navy this one thing was sure—that the industrial power of America would present to the world one of its most majestic spectacles, as it was soon to be placed, all of it, freely at the disposal of the nation as one tremendous power for righteousness in war.

And we saw that power so exerted. I wish it had been possible for you—I wish it had been possible for me—to have seen the physical work that the Army did in France. I knew a little bit of what was going on. Once in a while I caught a vision of things so vast that they staggered me, who have spent my life in American industry.

One evening we were considering the question of fire insurance on the factories which were at that time busy backing up the Army, and it was far from being advanced then to what

it afterwards became, and it was brought out in the evening's talk that we should have to look after fire insurance upon 35,000 separate factories working at that time to support the American Army. The spectacle some day will be written, and will be, as I said to my friend, the minister, majestic, but the finest thing of it all was the human side that forgot itself and faced the selfishness of Germany with the unselfishness of America.

#### OUR DUTY TO SUCCOR RUSSIA.

And now we look still to the unselfishness of America, for we face great things yet to be done. The military operations, let us hope, are past. Let us hope are past! But you and I sit as it were in a great theater before a curtain that has not yet lifted, behind which lies, unknown as yet, the dreadful problem that Russia presents to the world. We have seen, thank God, within a week, something that looks like the restoration of sanity in Germany itself, but what the stage may hold behind the Russian veil, we do not certainly know, for there are 180,000,000 human souls there of whom 160,000,000 cannot read or write; they cannot be reached by press or by book or by pamphlet, and what we are there to find, we do not yet fully know. We may not, you and I, we may not, like a turtle, draw our hands, our feet and head into our shell and say, "We will have none of this." We may not, like the ostrich, bury our head in the sand and say, "We see nothing." Your boys and my boy fought the fight against the autocracy of imperialism. Let us hope and pray we may not have to face the autocracy of anarchy. We believe that Bolshevism rests on hunger, and we have abundance to spare, thank God, and we must give of that abundance. We sent last year twice the food we ever thought we could spare. We must send at least one-half as much more food this year.

We have it to send, but if you trouble, as some of you may, on the question of shipping, gentlemen, remember that over twenty million tons of food must go yonder from this country alone before the spring is half gone, lest starvation, which means anarchy, walk abroad. It is walking abroad now. We are through with military operations. We are not through yet with the problems. There is the question, then, which I have thus raised, of ships; and now I speak to you as practical men and manufacturers in the language which you know so well.

#### SHIPPING BOARD TO ESTABLISH COMPETITIVE RATES.

We have not yet a plant, a physical plant, afloat in this country to do the work called upon to do. Let us not be too impatient with those who control our shipping. Bear in mind, as I shall tell you in a moment, that I am doing myself, in every possible word and influence, all that can be done to bring sufficient shipping to the immediate relief of the commerce that waits in all our ports; and to-night, thank God for it, it is announced that the Shipping Board has seen the need of standing the gaff, as you have to stand it, and of reducing its valuations on this vast multitude of shipping, so that the rates it is hereafter to charge shall be fairly competitive rates, and your commerce shall be free to move on equal terms with all the world.

There have been days, there have been recent days, in which it was deemed possible that an effort might be made to charge American industry with rates at sea so as to earn a profit upon the war cost of American ships. That danger is past. Perhaps the earthquake reported a few days ago was, after all, merely the reaction of certain telegrams passing under the sea.

None the less, the thing is over; the danger is past, and we are free to move at sea once more when once we can get the ships to go. Out of twenty-one vessels to be built this month on the Pacific Coast alone, I have succeeded in getting six for our trans-Pacific trade; for the others are needed for food for the world, and for the transportation of necessary army supplies.

#### THE UNITED STATES A WORLD CREDITOR.

I should like, if time permitted, to develop still further the great business problems we are now facing, the problem of credits. You know very well, and I, that we must face six billion dollars in taxes this year; that above it we must face a loan of five billion dollars in the month of April, and that on top of that we must continue our credits to those yonder who have no credits themselves, and who needs must buy and have not that wherewithal to pay. Would you leave the people of Servia without homes? They have been driven from their land—all the families, men and women and children, all that



WILLIAM C. REDFIELD,  
SECRETARY OF COMMERCE.

survived—and come back to find their country stripped. Would we supply to Belgium homes? Would we supply to Northern France homes? It is probable a million dwellings must be built in Continental Europe alone this coming spring and summer. From somewhere they must get cement and lumber and hardware, and none has so much of all to spare as we. But how shall they be paid for save by credits which we shall ourselves extend in addition to what we have already done? And you must be prepared, you men of affairs, to be asked and to consent to the purchase of strange and novel securities in your home towns; for unless America shall buy the securities of foreign corporations, industrial, municipal and others, it seems that it would be very difficult indeed to build up the world again to anything like its former status.

The war is over, say you? No, no. The explosion of the cannon has stopped, but the stern service of war is here yet; and in food and credit and in materials and in machinery, it must still go on.

#### EARLY REMOVAL OF CABLE CENSORSHIP AND TRADE RESTRICTION.

That leads to another thought, which I am sure you have all been thinking. What about cables? What about censorship? What about restrictions that still exist on trade? First of all, then, it is my desire, it is all the thought of Washington, to get rid as rapidly as may be of every restriction on every trade of every kind. But there are certain things in which we are not free to move alone. By the very terms of the armistice, the blockade remains, and that blockade we are not free to move to lift by ourselves, for we are bound with others to act in good faith with them. A part of that blockade is the cable censorship, and it is not in the power of the United States alone to act upon that matter. We must act concurrently with those with whom we have agreed to act. Nevertheless, I have within a few days cabled to Secretary Lansing in Paris, saying to him that it is my earnest hope that he may get concurrent action of our associates in the war, and release the cables and the censorship freely for America.

#### PROMOTION OF UNITED STATES FOREIGN COMMERCE.

I want to speak, for my time is properly limited, very briefly, of the future work we are planning to do. It takes three forms. It takes the direct form of promotion of the commerce by which the country lives. We have within this week been given by Congress double the sum that we have ever had before.

I do not speak a word of criticism at all when I say that on going to Washington six years ago I found the sum annually appropriated for the promotion of American commerce abroad the vast annual figure of \$60,000. I presented to Congress the statement that many an advertising firm even in my home Borough of Brooklyn spent more than that in selling dry goods to the women of the town. I pleaded only a few weeks ago at least a sum equal to the payment of the soldiers of one regiment be given to develop American commerce abroad. We asked three times what we had. It had grown from the \$60,000; it had grown more than ten times. We asked three times what we had and we got twice, and we are glad to have it; and now with the funds given by the President himself that our commerce may have eyes and ears abroad, the men are going out until we have already covered most of the world and we hope to cover it fully with trained business men of affairs, speaking the languages of the countries to which they go, always, and trained in your factories and others to do the work of American industry throughout the world until we think we shall be able by the summer-time, for the appropriation does not take effect until the 1st of July, to put abroad in all the round globe, bright, earnest, capable young American business men, eagerly carrying the flag into every land on which the sun shines.

#### GERMAN SCIENTIFIC TRADE METHODS.

Secondly, we aim to bring to you something you have never had, and not having had have hardly missed, for Germany built her industries on science, gentlemen. Her great success all around the globe was based on actual knowledge. It did not raise a laugh in any German factory to mention the name of a strange country. It has often made me feel queer to speak of some foreign city of importance in an American shop and have the men laugh as if the very name itself had something funny about it.

I remember discussing once the great Dutch East Indian Port of Soerabaya to an American audience, only to discover shortly thereafter that very few of them had ever heard of a port in which hundreds of vessels lie all the time.

Germany built her business on scientific work, and in her business houses of large size were men who spoke all the

civilized languages and some besides; and she knew with perfect certainty what she was to do. Let me give you a trifling example. In a certain Central American country is an Indian tribe that buys large quantities of cotton. America failed to sell them. So did Great Britain. So did Germany. But the Germans went back and sent from the textile mill to a university for an ethnologist. What has an ethnologist to do with trade? They put to him this question: "Have these people certain sacred symbols and lucky designs? Have they sacred colors and unlucky ones?" He told them. The German salesman went back and presented to the tribe textiles woven in designs that were familiarly sacred to them and in colors that were consonant with their ideas of good fortune; and he sold them and nobody else ever did. It is common sense, isn't it? Would you send a salesman to Southern Ireland to sell orange-colored goods? Would you send a salesman to Asiatic Turkey to sell textiles with the design of the Sign of the Cross? And yet, we do not think, you and I, we do not think of these things.

#### EXACT KNOWLEDGE A TRADE NECESSITY.

It is only a month since a great American concern was about to send a color card to China, offering for sale to those Chinese merchants, whose ability to buy and sell those of you who deal in Singapore know perfectly well, offering to send to that class of Chinese trade color cards in which the blue was the coolie blue of China.

When will we learn to apply exact knowledge to our business life? That knowledge in science as well as in research abroad we are able to bring to you; and if there be in your establishment a problem in your own business which you have neither time nor ability, having to earn your living, to work out, we are ready to put a staff of rubber experts, scientific men, trained in our own rubber mill, at work upon the problem in your behalf; and I believe you would say that there is no such industrial research laboratory in the world as that for which President Wilson has recently given to us \$1,150,000 to construct the building alone.

#### INDUSTRIAL COOPERATION SERVICE WILL GAIN WORLD TRADE.

Thirdly, through the gracious courtesy of the War Industries Board, we have become the beneficiary of a fine legacy for them in our industrial cooperation service. We want to go step by step with you in the conservation work and the standardization work. We will work with you side by side as long as you will do that with us. We have not the war power; we do not wish it; but we believe that sweet reasonableness will appeal to American business men, and we believe that there is something else that will appeal because the vision of America has grown larger these recent months. You and I have got to go out into the big world beyond the three-mile limit to earn our livelihood henceforth, because such is the capacity of American industry that when it runs continuously full time, we have not the purchasing power in this country continuously to take its product. We have got to sell abroad, all around the world. That means that your shops and mine—for I am interested as you are in factories—that means that your shops have got to be trimmed like an athlete, down to the bone of power and strength, and that individual fancy and individual love for this or that or the other specialty, may have to stand aside because of the country's need for athletic industry, in which there is no waste, in which there are no fancy trimmings, not because the Government has aught any longer to say, but because the country needs the trained soldier of industry just as it has had the trained soldier of war.

And you and I have got to remember that in our industrial work we must be stripped for battle and set aside weights of personal pride and personal desire in order that the great industries which we represent may take their fair and proper place in the peaceful contests of the world. And this conservation service, this industrial cooperation service in almost any form that industry needs, whether it be scientific help or commercial help, whether it be men or information, is at your command. It is as broad in its possibilities as your needs can be.

And finally, the war powers have gone, let us hope not to return. I do not represent the police power of the Government. I want none of it. I would to God it had never to be used. But if you will cooperate closely with the department whose duty it is to help yourself, help you across the globe or in the laboratory or by its scientific men sent to your own shop, if you will pull with us in this common effort, there is very little danger that any police power can ever come near you. And so I bid you welcome to a department's work in your service that is organized. Do you want a man sent abroad to study your problems? Suggest the man. Take from him his personal interest. Separate him from his personal and selfish duties. Send him to us and let him go freely out into the world, if so be only that

he speaks to you all the while away and on his return, for we cannot serve a single house, but we can and shall be glad to serve the rubber industry of the United States.

PRESIDENT WORK.—A toast to Secretary Redfield! (A rising toast was drunk to Secretary Redfield and the guests sang "For he's a jolly good fellow.")

PRESIDENT WORK.—Come to order, please, gentlemen. We have with us to-night another honored guest, Mr. J. Joyce Broderick, Commercial Attaché to the British Embassy. Mr. Broderick has been a good friend of our association through the various phases of the rubber embargo, and our troubles would have been much greater had it not been for the broad-minded view with which he approached the various problems in connection with British control. Mr. Broderick has kindly consented to make a few remarks to us. When he has finished we are going to move away a couple of tables here, and the banquet committee has planned a little further entertainment for you gentlemen.

I take great pleasure in introducing Mr. Broderick.

#### ADDRESS OF J. JOYCE BRODERICK.

Mr. President, Ladies and Gentlemen:

I am slightly reminded of a story repeated by an English novelist, which told of how a little boy once climbed a rainbow and at the end of the rainbow, behind the clouds, he found a wonderful city. Its houses were of gold and its streets were paved with silver, and the light that shone upon it was like the light that lies on the sleeping world at dawn. And all the men that dwelt in that wonderful city were great and good, and the women were all more beautiful than the women of a young man's dream. And the name of the city was "The City of the Things Men Meant to Do."

#### ENGLAND THANKS THE AMERICAN RUBBER INDUSTRY.

I do not know whether I should say that I intended to prepare an address which I thought would be befitting an important occasion of this kind, when one of the greatest industries built up by magic in this country of industrial miracles was assembled together to review the achievements that they had accomplished during a period of crisis. But you will probably be glad to hear that I am to address you for only a few moments and I am glad to have them because they give me an opportunity which I have been seeking for a long time, an opportunity to express to the rubber industry of the United States the gratification and the thanks of the government which I have the honor of representing and of the whole British people for the loyal cooperation which we had from you in preventing our enemy from getting rubber or rubber manufactures during a period which to us was of the greatest and most vital importance.

#### RUBBER GUARANTIES EFFECTIVE.

And I should like to remind you that never during the whole course of what you are all as familiar with as the British rubber agreement, did any British official consider it for a moment necessary to check up the statements you made or to investigate whether you were abiding by your guaranties. I was asked on one or two occasions in the ordinary routine course of inquiry what we were doing to see that those guaranties were observed, and I said: "Nothing. So long as we have the promise of the rubber industry of the United States we can have no better security." And if ever minor questions of difficulty cropped up the chairman of your rubber control committee will bear me out when I say that we did not investigate them, but turned them over to the rubber control committee to dispose of as it pleased.

Now, the experiences we had and the contracts that we were fortunate enough to establish during that period have impressed us with the highest respect for American industry in general and for your particular association more especially. The efficiency of the agreements we made and of the agreements you made later, and the regulations that were arranged with the War Trade Board is illustrated by this: that I do not know of one single authenticated case in which a pound of rubber or rubber manufactures or a single dollar representing the profits on any transaction in rubber ever found its way to the Teutonic countries from the United States since the outbreak of the war.

#### FRIENDSHIP BETWEEN ENGLISH-SPEAKING PEOPLES.

I believe, ladies and gentlemen, that the common sacrifices which have been made in this war have drawn immeasurably tighter the bond of sympathy between the American and the British people.

The Secretary of Commerce has outlined to you some of the difficulties with which the world is now faced. The question of the means which we must adopt to prevent the recurrence of this awful calamity is a question which is engaging the best minds of the world everywhere. I believe that this question will not be solved except in proportion as the American and the British people agree to cooperate toward their solution. Is it too much to hope that in the conflicting interests and the perplexing problems which are facing the world to-day we may count upon one constant unchangeable thing, an unbreakable, lasting friendship between the English-speaking peoples? If we can count upon that, I look forward to the future with the greatest confidence, for it is upon the cooperation and unselfish working together of the English-speaking peoples, I believe, that the whole peace and prosperity of the world in the future rests. And I know that I speak the thought of all the British people when I now in conclusion express the sincere hope for the continued growth and prosperity of the rubber industry of America.

#### MEMBERS AND GUESTS PRESENT.

##### AT THE PRESIDENT'S TABLE.

Bourn, Hon. A. O.,	Neave, Charles,
Broderick, J. Joyce,	Redfield, William C.,
Colt, Col. Samuel P.,	Secretary of Com-
Daniel, C. A.,	merce,
Davol, Charles J.,	Sawyer, Homer E.,
Firesone, H. S.,	Smart, W. A.,
Hodgson, George B.,	H. B. M. Vice-Consul,
Hotchkiss, Col. H. Stuart	Thornton, A. D.,
Lambert, John A.,	Wilson, Charles T.,
Lowman, John S.,	Work, B. G.

#### ALPHABETICAL LIST.

A	Bertuch, Paul,	Carlisle, C. H.,
Abbott, M. R.,	BeSaw, Charles A.,	Carroll, J. M.,
Abercrombie, Joseph,	Bicknell, J. W.,	Carter, R. E.,
Abranson, S. E.,	Bishop, Erle A.,	Cartmell, Van H.,
Achelis, Frederic G.,	Bixler, H. W.,	Case, C. C.,
Adams, C. J.,	Blake, Herbert S.,	Chalfin, Joseph,
Adams, H. J.,	Blanchard, J. C.,	Chandler, J. J.,
Adams, R. B.,	Blandin, Victor C.,	Chapman, R. P.,
Agar, J. L.,	Bochow, M. H.,	Christie, J. A.,
Agnew, R. H.,	Boggs, Charles R.,	Clark, C. B.,
Ake, M. E.,	Bourn, Hon. A. O.,	Clark, C. S.,
Allen, J. E.,	Bourn, A. O., Jr.,	Clark, Myron H.,
Andersen, E. A.,	Bourn, S. W.,	Clark, S. H., and four
Anderson, J. D.,	Bouton, P. V. L.,	guests,
Andruss, Frank E.,	Bower, C. M.,	Clements, Dr. R. L.,
Appleton, Captain	Boyer, Edwin,	Clements, James P.,
F. H.,	Bracker, H. J.,	Clift, Robert E.,
Appleton, F. H., Jr.,	Brackett, George L.,	Clopper, H. G.,
Appleton, Lloyd E.,	Bradley, C. E.,	Cobb, James H.,
Armstrong, George F.,	Braender, Fred L.,	Coleman, H. H.,
Armstrong, H. G.,	Braender, Harry,	Collins, Charles,
Asakage, A.,	Braender, W. P.,	Colt, Col. Samuel P.,
Ashton, Thomas C.,	Braham, John J., Jr.,	Combs, C. F.,
Astor, A. M.,	Blander, L. W.,	Comey, M.,
Austin, S. Y.,	Briggs, C. A.,	Conlin, A. J.,
Ayer, R.,	Brinckerhoff, E. A.,	Conradt, A. V.,
Ayer, Lieutenant P. P.,	Broadwell, E. H.,	Converse, Harry E.,
B	Broderick, J. Joyce,	Cook, C. E.,
Babcock, F. Huntington,	Brooks, E. H.,	Cook, C. S.,
Bacon, H. M.,	Broughton, John S.,	Cook, M. M.,
Badenhop, Robert,	Brown, A. H.,	Cook, O. R.,
Bahlinger, J. F.,	Brown, Andrew H.,	Cooke, Russell Y.,
Bailey, J. R.,	Brown, J. Stuart,	Corbin, C. E.,
Baird, R. W.,	Brownell, C. R.,	Corman, C. S.,
Baird, H. W.,	Bruyn, Frank S.,	Cornell, A. Boyd,
Baird, R. P.,	Bruyn, W. F.,	Cory, Robert H.,
Baird, W. T.,	Buchanan, Charles,	Cottle, George T.,
Baile, W. H.,	Bullock, E. L.,	Coughlin, E. J.,
Ballo, Roland H.,	Bullock, Hugh,	Coughlin, Thomas,
Banbury, F. H.,	Bunker, Gordon,	Coughlin, T. B., Jr.,
Bancker, W. F.,	Bunker, Horace E.,	Cowan, R. R.,
Parker, William E.,	Burgess, Charles S.,	Cranor, Donald,
Barnard, H. H.,	Burgess, William L.,	Crowley, John F.,
Barry, B. J.,	Burnham, J. Frank,	Cummings, H. H.,
Bass, William F.,	Burr, A. E.,	Cummings, W. L.,
Basten, Otto,	Burrage, H. L.,	Curran, James,
Bates, C. A.,	Burrill, W. S.,	Cutler, David A.,
Bates, E. A.,	Burton, H. P.,	D
Baum, J. E.,	Burton, John,	Daggett, H. A.,
Bauman, H. A.,	Bussell, A.,	Dane, Francis S.,
Bechberger, W. A.,	Butler, A. I.,	Daniel, C. A.,
Bedell, H. H.,	Butler, C. J.,	Daniel, F. W.,
Bedford, Bruce,	Butler, R. C.,	Daniels, W. B.,
Beecher, L. A.,	Byles, W. E.,	Dann, C. A.,
Behrend, Victor,	Byrnes, James W.,	Dannerth, Dr. Frederic,
Belcher, Edwin W.,	Caldwell, E. M.,	Daum, George W.,
Bell, William H.,	Caldwell, J. C.,	Davies, M. E.,
Benedict, J. B.,	Caldwell, R. J.,	Davis, Edgar B.,
Bennett, J. A.,	Callahan, J. T.,	Davis, H. G.,
Berrien, W. P.,	Callaway, Fuller E.,	Davis, M. E.,
Bers, Aaron,	Campbell, Philip H.,	Davis, Oscar C.,
Bers, Edward,	Cannon, M. L.,	Davol, Charles J.,
	Carkhuff, S. G.,	
	Carleton, W. S.,	



J. JOYCE BRODERICK.

- Day, H. G.,  
Dealaman, Adam,  
Dearth, E. E.,  
Delaney, H. S.,  
Delapierre, H. B.,  
DeLaser, Horace,  
DeLong, William A.,  
Desmond, T. A.,  
Devine, James W.,  
Dickerson, George B.,  
Dickerson, W. H.,  
Dickinson, F. S.,  
Dodd, Samuel H.,  
Dodge, H. V.,  
Donovan, M. J.,  
Doty, H. S.,  
Drake, F. A.,  
Drake, R. E.,  
Drake, R. H.,  
Drayton, Judson,  
Drisler, W. Arthur,  
Dryer, Alfred,  
Duffy, L. A.,  
Dumont, R. Duval,  
Dunbar, F. W.,  
Dunbar, J. Frank,  
Duncan, W. W.,  
Dunn, H. T.,  
Dunsford, S.,  
Duryee, A. R.,  
Durr, H. H.,  
Dwyer, Thomas A.
- Eagles, R. P. M.,  
Earle, Russell W.,  
Eden, W. E.,  
Elbogen, Paul,  
Elmendorf, A. R.,  
Emerson, Robert S.,  
Erskine, Charles W.
- Faber, Eberhard,  
Faber, E. L.,  
Fargo, A. W.,  
Farrell, Franklin, Jr.,  
Fay, E. E.,  
Feist, Jacob G.,  
Fera, Henry, Jr.,  
Ferguson, J. B.,  
Field, H. E.,  
Fielding, H. B.,  
Fields, R. K.,  
Figart, B. M.,  
Finck, C. B.,  
Fink, Victor W.,  
Firestone, Harvey S.,  
Firestone, H. S., Jr.,  
Firestone, R. J.,  
Firey, L. H.,  
Fisher, George,  
Fisher, Robert C.,  
Fisher, R. L.,  
Fisk, H. G.,  
Fitch, E. H.,  
Fitzgerald, F. B.,  
Flint, Dr. H. A.,  
Foley, F. C.,  
Foljamie, E. S.,  
Foot, Fred,  
Foot, R. F.,  
Fox, Frank F.,  
Frame, A. M.,  
Francis, A. W.,  
Frank, A. A.,  
Frank, A. A.,  
Fraser, E. B.,  
French, H. W.,  
Freshman, Charles,  
Frey, H. F.,  
Fries, R. J.,  
Frisell, F. H.,  
Friswell, A. E.,  
Fuerth, O. H.,  
Fulkert, C. L.,  
Fuller, H. P.,  
Fulper, Edward B.,  
Fultz, David L.,  
Funk, A. S.,
- G
- Garber, H. D.,  
Gardner, Lester D.,  
Gardner, T. M.,  
Garretson, C. D.,  
Garthwaite, A. A.,  
Gaskill, J. W.,  
Gates, H.,  
Gaver, Floyd W.,  
Geer, W. C.,  
George E. J.,  
Gilbert, Frederick B.,  
Giles, James F.,  
Gill, H. R.,  
Gill, O. W.,  
Githens, H. A.,  
Glaenzer, G. Brette,  
Glass, R. E.,  
Glidden, Alfred A.,  
Goetz, Hugo L.,  
Gold, William B.,  
Goldman, Herman,
- Goodwin, Leonard,  
Gordon, R. E.,  
Gutting, Louis,  
Goudie, James Q.,  
Gove, F. G.,  
Grafton, Edwin H.,  
Graham, F. L.,  
Graham, Kelley,  
Granzen, Robert H.,  
Gray, D. E.,  
Greene, Bartlett,  
Greene, John W.,  
Greene, N. Lincoln,  
Greene, R. H.,  
Greene, W. E.,  
Greenough, Allan B.,  
Gribbon, J. J.,  
Grieb, William G.,  
Grobe, H. H.,  
Groslicht, O.,  
Gunlock, William M.,  
Gunn, J. N.,  
Gustavson, C. A.
- H
- Haigh, H. J.,  
Haines, W. M.,  
Hall, George E.,  
Halling, Mr.,  
Hamblen, C. W.,  
Hammel, C. M.,  
Hammer, Dr. H. F.,  
Hamsterstrom, F. N.,  
Handy, Capt. John L.,  
Hanes, J. W.,  
Hardenbergh, A.,  
Hardin, C. W.,  
Harding, W. B.,  
Hardy, R. S.,  
Harlow, Robert C.,  
Hammel, Thomas F.,  
Hanson, S. W.,  
Harrison, Clark W.,  
Hart, G. E.,  
Hart, Wm. F.,  
Hatch, T. E.,  
Hathaway, Walter C.,  
Hauvette, J.,  
Heminsford, M. L.,  
Henderson, B. W.,  
Leahy, Frank,  
Lee, F. R.,  
Lennihan, Richard,  
Le Pan, Louis N.,  
Lewis, Seneca G.,  
Ley, L. H.,  
L'Hommedieu, P. B.,  
Liddell, W. Jr.,  
Linard, J. B.,  
Lindsey, T. S.,  
Lines, M. S.,  
Little, C. E.,  
Littlejohn, Lomax,  
Littlejohn, Lomax, Jr.,  
Hitchcock, Carl,  
Hodge, S. A.,  
Hodgman, G. B.,  
Hodgman, S. T.,  
Holcombe, H. W.,  
Homa, Pablo,  
Hood, Frederic C.,  
Hopkins, Henry, Jr.,  
Hopkins, M. G.,  
Hopkinson, Ernest,  
Hooper, C. C.,  
Hoppe, C. D.,  
Hornberger, Henry L.,  
Houk, Henry L.,  
Howard, E. E.,  
Howell, C. J.,  
Huber, Edward E.,  
Hubler, C. D.,  
Huston, C. P. L.,  
Hutchins, Edward,  
Huxley, E. H.,  
Hydes, Thomas.
- I
- Irish, C. H.
- J
- Jackson, John W.,  
Jackson, O. H.,  
Jackson, Walt,  
Jacoby, Ernest,  
Jahant, Mr.,  
James, H. B.,  
Jamison, C. S.,  
Jamison, R. E.,  
Janney, G. Mason,  
Jandeur, George E.,  
Jenckes, F. L.,  
Jenkins, H. W.,  
Johnson, Franklin R.,  
Johnson, Major C. F. H.,  
Johnson, F. A.,  
Johnson, W. A.,  
Johnson, W. A., Jr.,  
Johnstone, J. T.,  
Jones, A. E.,  
Jones, C. M.,  
Jones, Frederick H.,  
Jones, J. D.,
- K
- Kains, Archibald,  
Kanki, E.,  
Katzenbach, F. F.,  
Kaufmann, C. B.,  
Kavenagh, W. E.,  
Kearns, John,  
Keeler, L. V.,  
Keller, K.,  
Kelly, J. H.,  
Kelly, T. J.,  
Kendall, J. A.,  
Kennedy, C. B.,  
Kennerdell, Richard,  
Kenyon, C. Jr.,  
Kenyon, George,  
Keyes, William,  
Kidde, Lieutenant,  
Kimball, Thomas F.,  
Kip, Ira J., Jr.,  
Kittay, F. L.,  
Kloss, George C.,  
Kniffen, F.,  
Knowles, E. B.,  
Knox, E. C.,  
Koken, E. H.,  
Koontz, R. B.,  
Kreitler, R. G.,  
Kreuder, William G.,  
Kubie, David S.,  
Kubie, Samuel,  
Kugler, H. W.
- L
- LaDow, Jesse E.,  
Lahey, Frank T.,  
Lambert, John A.,  
Lamont, A. D.,  
Lamont, Sloane, Jr.,  
LaMotte, F. Jr.,  
Landers, H. D.,  
Lane, James W.,  
Langdon, S. P.,  
Lash, J. W.,  
LaShelle, Claude P.,  
Laurie, Irving,  
Laurie, William B.,  
Lawrence, Arthur W.,  
Leahy, Frank,  
Lee, F. R.,  
Lennihan, Richard,  
Le Pan, Louis N.,  
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Hodgman, S. T.,  
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Hopkinson, Ernest,  
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Hoppe, C. D.,  
Hornberger, Henry L.,  
Houk, Henry L.,  
Howard, E. E.,  
Howell, C. J.,  
Huber, Edward E.,  
Hubler, C. D.,  
Huston, C. P. L.,  
Hutchins, Edward,  
Huxley, E. H.,  
Hydes, Thomas.
- M
- Macaulay, R.,  
MacGregor, H. L.,  
MacKin, Joseph,  
MacKusick, H. A.,  
MacLean, J. M.,  
MacMas, Theodore F.,  
MacMichael, L. P.,  
MacMillan, J. A.,  
MacNamara, Alfred B.,  
MacNamara, L. P.,  
Macom, John W.,  
MacPherson, Warren,  
Maguire, J. D.,  
Maguire, John W.,  
Maguire, T. A.,  
Mahoney, P. H.,  
Mahony, W. B.,  
Maltus, William A.,  
Manchester, A. A.,  
Mann, Alan N.,  
March, H. L.,  
Marean, B. E.,  
Marland, W. H.,  
Marshall, T. C.,  
Martin, B. T.,  
Masie, Col. A. E.,  
Johnston, F. A.,  
Johnston, W. A.,  
Johnston, W. A., Jr.,  
Johnstone, J. T.,  
Jones, A. E.,  
Jones, C. M.,  
Jones, Frederick H.,  
Jones, J. D.,
- N
- Nash, W. G.,  
Naylor, R. B.,  
Newcombe, Richard S.,  
Nicar, Ted,  
Nichols, F. B.,  
Nickel, F. B.,  
Niles, Charles,  
Noble, H. C.,  
Noble, H. T.,  
North, George B.,  
Norton, E. F.,  
Norwood, Guy E.,  
Numbers, Albert.
- O
- Oakley, C. H.,  
Oakley, L. H.,  
Obalski, Xavier W.,  
O'Brien, James,  
Odell, J. E.,  
Odell, L. G.,  
O'Donnell, M. J.,  
Oliver, J. W.,  
Oliver, N. E.,  
O'Neill, W.,  
Oppenheimer, Jacob,  
MacNamara, L. P.,  
Osterloh, A. F.,  
Owen, W. C.,  
Owings, William R.
- P
- Page, John E.,  
Page, Waldo, A.,  
Palmer, T. R.,  
Partridge, A. G.,  
Partridge, F. E.,  
Paterson, D. A.,  
Peabody, Stephen,  
Pearce, A. E.,  
Peaty, F. H.,  
Peck, Arthur W.,  
Pell, George E.,  
Penny, David H. G.,  
Perkins, S. A.,  
Perish, Henry,  
Perrett, William,  
Maurer, Edward,  
Maurer, E. J.,  
Maus, J. B.,  
Mayo, George H.,  
Maywald, Dr. F. J.,  
Peugnet, J. J.,
- McBreen, George,  
McCallum, Fred,  
McClaren, H. L.,  
McCullough, G. C.,  
McDonough, A. G.,  
McDowell, F.,  
McKay, E. B.,  
McKenna, Francis R.,  
McKenna, R. T.,  
McLaughlin, C. W.,  
McLean, Joseph F.,  
McLin, George H.,  
McMahon, William,  
McMaster, H. B.,  
McNeill, Neil,  
Meade, James,  
Measure, Charles,  
Merriman, I. B.,  
Metzger, William F.,  
Meyer, Dr. E.,  
Meyer, Edward T.,  
Meyer, Otto,  
Meyers, A. C.,  
Miles, D. E.,  
Miller, Charles E.,  
Miller, E. F.,  
Miller, H. C.,  
Miller, J. A.,  
Miller, T. W.,  
Miller, William B.,  
Milne, Gordon,  
Milner, William Mac-  
kone,
- Miner, William H.,  
Mitchell, J. K.,  
Montgomery, Henry,  
Moony, Charles S.,  
Moony, Harry E.,  
Moony, J. G.,  
Moon, A. E.,  
Moon, Owen, Jr.,  
Moore, F. M.,  
Moore, John A.,  
Moore, J. T.,  
Morehead, H. J.,  
Morrett, William R.,  
and guest,  
Morse, W. M.,  
Moses, Fred L.,  
Mowe, J. V.,  
Muhslein, Charles,  
Muhslein, H.,  
Muhslein, J.,  
Muller, Charles,  
Mullett, W. C.,  
Murphy, Fred W.,  
Murphy, Joseph M.,  
Murphy, P. A.,  
Musselman, C. A.
- N
- Nash, W. G.,  
Naylor, R. B.,  
Newcombe, Richard S.,  
Nicar, Ted,  
Nichols, F. B.,  
Nickel, F. B.,  
Niles, Charles,  
Noble, H. C.,  
Noble, H. T.,  
North, George B.,  
Norton, E. F.,  
Norwood, Guy E.,  
Numbers, Albert.
- O
- Oakley, C. H.,  
Oakley, L. H.,  
Obalski, Xavier W.,  
O'Brien, James,  
Odell, J. E.,  
Odell, L. G.,  
O'Donnell, M. J.,  
Oliver, J. W.,  
Oliver, N. E.,  
O'Neill, W.,  
Oppenheimer, Jacob,  
MacNamara, L. P.,  
Osterloh, A. F.,  
Owen, W. C.,  
Owings, William R.
- P
- Page, John E.,  
Page, Waldo, A.,  
Palmer, T. R.,  
Partridge, A. G.,  
Partridge, F. E.,  
Paterson, D. A.,  
Peabody, Stephen,  
Pearce, A. E.,  
Peaty, F. H.,  
Peck, Arthur W.,  
Pell, George E.,  
Penny, David H. G.,  
Perkins, S. A.,  
Perish, Henry,  
Perrett, William,  
Maurer, Edward,  
Maurer, E. J.,  
Maus, J. B.,  
Mayo, George H.,  
Maywald, Dr. F. J.,  
Peugnet, J. J.,
- Peugnet, Ramsay,  
Pfaff, Edward F.,  
Pharis, Carl,  
Phelan, F. L.,  
Phillips, A. D.,  
Phinney, C. E.,  
Pierce, G. A.,  
Piper, Walter E.,  
Pitcher, Conrad N.,  
Pitcher, W. L.,  
Place, C. A.,  
Place, Charles H.,  
Plumb, L. J.,  
Poel, Frank,  
Pohle, H. V.,  
Pratt, A. S.,  
Pratt, B. H.,  
Pratt, Leslie R.,  
Price, P. B.,  
Proctor, Lawrence,  
Pusinelli, Fred,  
Pyson, Robert E.
- R
- Rankin, William H.,  
Medfield, Hon. Wm. C.,  
Redmond, A. C.,  
Raymond, H. E.,  
Raymond, H. K.,  
Reddy, H. H.,  
Reed, I. Ely,  
Reeve, Arthur,  
Repennig, Robert F.,  
Rice, R. L.,  
Richards, Leonard, Jr.,  
Richmond, C. A.,  
Rieder, T. H.,  
Rishel, J. A.,  
Roach, Frank W.,  
Roberts, Weldon,  
Robertson, J. G.,  
Robins, Thomas,  
Robinson, F. H.,  
Rockhill, L. C.,  
Rockwell, George H.,  
Roe, Mark E.,  
Roper, Charles H.,  
Ross, Frank,  
Ross, Frank B.,  
Rothschild, M. J.,  
Roumaniere, J. E.,  
Russell, H. G.,  
Russell, Joseph H.,  
Rutherford, W. O.,  
Rutter, F. S.,
- S
- Sattler, E. A.,  
Saunders, R. E.,  
Sawyer, A. M.,  
Sawyer, C. F.,  
Sawyer, Homer E.,  
Schaefer, S. A.,  
Schaffer, F. F.,  
Scheel, H. V. R.,  
Schenck, Warren A.,  
Schaeuer, A. L.,  
Schloder, George,  
Schott, L. J.,  
Schultheiss, Ernest,  
Schoenfeld, Karl,  
Schultz, F. A.,  
Schutz, C. C.,  
Schutz, E. J.,  
Schwab, F. M.,  
Schwartz, George S.,  
Seaman, F. A.,  
Sears, Stephen H., Jr.,  
Seger, Charles B.,  
Seiberling, G. W.,  
Seko, K.,  
Semple, Charles H.,  
Senz, A. W.,  
Seward, Thomas J.,  
Seybold, G. H.,  
Shaffer, Fred W.,  
Sharts, F. W.,  
Shea, J. J.,  
Sheldon, J. H.,  
Shellenberger, H. R.,  
Sherman, George W.,  
Sherwood, A.,  
Sherwood, F. W.,  
Shultz, W. D.,  
Simpson, William B.,  
Sinsapaugh, C. G.,  
Skinner, John,  
Skirm, George W.,  
Sloan, Charles,  
Slocum, E. M.,  
Smart, Hon. W. A.,  
Smith, C. Monroe,  
Smith, Frank E.,  
Smith, F. Haskell,  
Smith, Frank S.,  
Smith, Herbert E.,  
Smith, H. L.,  
Smith, H. W.,  
Smith, I. F.,  
Smith, M. F.,  
Smith, Theodore E.,  
Spadone, Amedeo,  
Spadone, Henry,
- V
- Van Alst, J. Milton,  
Van Cleef, F. C.,  
Van Kleeck, C. M.,  
Vaughn, C. W.,  
Vaughn, L. A.,  
Viall, H. T., Jr.,  
Viles, A. L.,  
Von Bernuth, F. A.,  
Voorhees, Frank D.,  
Voorhees, John J.,  
Voorhees, John J., Jr.,  
Verhuis, H. S.,
- W
- Wadleigh, Cornelius,  
Wagner, Fred J.,  
Wagner, Henry C.,  
Waite, H. W.,  
Walsh, Thomas F.,  
Walsh, W. C.,  
Ward, L. B.,  
Ward, T. A.,  
Wardman, Ervin,  
Ware, Philip C.,  
Warner, Lewis C.,  
Warren, A. W.,  
Waterhouse, Fred-  
erick L.,  
Waterhouse, F. T. P.,  
Watson, John J., Jr.,  
Watts, L. A.,  
Weaver, O. L.,  
Weber, Hermann,  
Weber, L. E.,  
Webster, E. C.,  
Webster, Stuart,  
Weeks, P. S.,  
Weiber, Carl,  
Weida, H.,  
Weitling, William W.,  
Welch, C. J.,  
Welton, Spencer,  
Wesley, P. R.,  
Weston, J. C.,

Westren, J.	Whitesel, H. H.	Whyte, J. A. E.	Wilson, E. B.	Wood, Le Roy.	Work, B. G.
Wheeler, Shirley M.	Whiting, W.	Williams, E. S.	Wilson, Edgar Hunt,	Wood, Theodore.	Worthington, H. D.
Wierry, W. P.	Whitman, R. P.	Williams, Frank L.	Winter, Arthur.	Woodward, S. P.	Yamanaka, S.
Whipple, M. P.	Whittaker, William H.	Williams, Herbert M.	Wisell, W. D.	Woodbury, R. B.	Yotsuanagi, E.
Whitehead, Alfred.	Whitelsey, C. B.	Williamson, H. L.	Wogan, J. F.	Woodward, F. R.	Young, P. E.
Whitehead, R. E.	Whitelsey, Dr. Theodore.	Wilson, C. Dudley.	Wood, Charles E.	Woodward, H. J.	Young, W. J.
Whitenack, W. A.		Wilson, Charles T.	Wood, John R.	Woodward, Van Lear,	Yule, W. H.

## Annual Meeting of The Rubber Association of America.

THE annual meeting of The Rubber Association of America was held at the Waldorf-Astoria, New York City, on January 16, 1919. President Work called the meeting to order and after the call for the meeting, minutes of the previous meeting, report of the president, and the treasurer's report had been accepted, the following announcement was made by Charles T. Wilson:

### REPORT OF THE COMMITTEE ON RUBBER AND KINDRED PRODUCTS.

The committee during the past year has continued to cooperate with the War Trade Board and to announce from time to time various regulations prescribed by that body as well as to administer the details connected with the system of rubber control. Their activities have been made the subject of a great many advices sent you during the year.

Our relations with the Government have been most harmonious and hearty support and cooperation have been shown by the industry in carrying out both in letter and spirit what it was called upon to do.

At the request of the War Trade Board we have at times submitted suggestions and plans for their approval, to cover new situations. Perhaps the most important was that of allocating reduced weights of rubber allowed for importation after May 8, 1918, in as fair a manner as possible.

A short time ago we were able to announce that the present system of guarantees and scheme of control had been much simplified; that while rubber would still continue to be consigned to The Rubber Association, manufacturers and importers are no longer required to furnish individual guarantees, and a number of other formalities were abolished.

I am now much pleased to tell you we have just received word, which I believe will be officially confirmed within the next day or so, to the effect that even this nominal control has been abolished by the War Trade Board and that rubber can now be imported and distributed by observing such regulations as the Government may have in effect from time to time.

**PRESIDENT WORK:** That means that all regulations are now off except the import license; and, of course, there is still a control over the enemy trade.

**MR. WILSON:** Yes, sir.

### CHANGES IN THE CONSTITUTION AND BY-LAWS.

The following changes in the constitution and by-laws were authorized:

#### BOARD OF DIRECTORS INCREASED TO FIFTEEN.

##### Section I of Article IV to read:

The Board of Directors shall consist of fifteen firm representatives who shall be elected at the annual meeting, the directors to be divided into three classes to serve one, two, and three years respectively; those to be elected at the annual meeting of 1919 shall be one director to be added to each of the classes whose terms expire in 1920 and 1921, and five directors to be elected for three years, and thereafter all directors whose terms shall then have expired shall be elected for three years.

#### APPOINTMENT OF ASSISTANT SECRETARIES.

The following to be added to Section 1 of Article V:

and as many assistant secretaries as may be found necessary, who shall be elected as above provided, or appointed by the Executive Committee.

This will involve also making the following changes:

Add to Section 3 of Article V a new paragraph reading:

The assistant secretary, or assistant secretaries, shall perform the duties of the secretary in the latter's absence or disability, and such other duties as may be designated by the Board of Directors or by the Executive Committee from time to time.

Change Section 5 of Article V so that it shall read:

Section 5. The office of secretary, or assistant secretary, and treasurer may be held by the same person.

In Section 2 of Article VI, change the third from the last paragraph so as to read:

The secretary, or an assistant secretary of The Rubber Association of America shall be secretary of the Committee on Arbitration.

In Section II of Article IX change the last sentence to read:

Each division may appoint its own chairman or vice-chairman but the secretary or treasurer of each division shall be the secretary or an assistant secretary and treasurer of this association.

#### GIVING BOARD OF DIRECTORS AND EXECUTIVE COMMITTEE EQUAL POWER.

Change the third sentence in Section 1 of Article VI so that it shall read:

The Executive Committee shall, when the Board of Directors is not in session, pass on all elections to membership.

Change the last sentence of Section 1 and the last sentence of Section 2 of Article VIII, so that those sentences shall read:

The endorsement of two directors and a majority vote of the Board of Directors or of the Executive Committee shall be necessary for admission.

Change the first sentence of Article XII so that it shall read:

Entertainments and dinners of the Association may be held at the discretion of the Board of Directors or of the Executive Committee.

Change Article XIV so that it shall read as follows:

If any member shall be charged in writing (addressed to the secretary of the Association) by any other member of the Association with conduct injurious to the good order, welfare, interest or character of the Association or with acts inimical to the interests of the Association and tending to discredit it, or with acts at variance with the requirements of the charter, constitution and by-laws or rules of this Association, or if the Board of Directors or the Executive Committee shall be cognizant of such conduct and acts and prefer charges, the Board of Directors or the Executive Committee shall thereupon inform the member so charged in writing; and if, after giving the person so charged an opportunity to be heard, the Board of Directors or the Executive Committee shall be satisfied of the truth of the charges and that the same demands such action, it may proceed to expel such member or to suspend such member for a period not exceeding six months, or it may request such member to resign; and if such member declines to resign it may proceed to expel him; a two-thirds vote of the entire Board of Directors or of the entire Executive Committee shall be required to expel or suspend.

#### NEW BOARD OF DIRECTORS.

The four nominees of the nominating committee and the three nominees of members of the association were elected members of the board of directors, the personnel of which follows:

Expiring in 1920: Homer E. Sawyer, chairman; Charles T. Wilson, John A. Lambert, Paul W. Litchfield, G. W. Henne.

Expiring in 1921: Frank A. Seiberling, Harry T. Dunn, Charles J. Davol, William J. Kelly, C. W. MacLaughlin.

Expiring in 1922: J. Newton Gunn, Seneca G. Lewis, J. S. Lowman, A. D. Thornton, John Morgan.

#### INCOME PROVIDED FOR SUPPORT OF ASSOCIATION.

In order to raise sufficient funds for the continuance of the work of the Association the following plan was proposed:

WHEREAS, it is necessary to provide a sufficient income for the continuance of the growing activities of this Asso-

## Officials and Board of Directors of the Rubber Association of America, Inc.



J. A. LAMBERT.



J. S. LOWMAN.



S. G. LEWIS.



P. W. LITCHFIELD.



HARRY T. DUNN.  
*First Vice-President.*



HOMER E. SAWYER.  
*President.*



FRANK A. SEIBERLING.  
*Second Vice-President.*



C. J. DAVOL.



C. T. WILSON.



*Underwood & Underwood, N. Y.*  
H. S. VORHIS,  
*Secretary-Treasurer.*



W. J. KELLY.



G. W. HENNE.



J. N. GUNN.



J. MORGAN.



A. D. THORNTON.



*Underwood & Underwood, N. Y.*  
C. W. MACLAUGHLIN.

ciation, and to permit of the accumulation of an invested fund, be it

RESOLVED, that this meeting approves of the charge of a nominal fee of not less than two cents, not more than three cents, per hundred pounds, on all rubber arriving and shipped to manufacturers, and not consigned to The Rubber Association, and be it further

RESOLVED, that the Board of Directors of The Rubber Association be instructed to prepare an equitable plan for this distribution of the cost of and collection of said fee.

After a short discussion the above resolution was unanimously adopted.

#### PRESIDENT WORK'S CLOSING REMARKS.

**PRESIDENT WORK:** Now, gentlemen, I want to express my thanks and appreciation to you all for the support you have given me during the past year. It has been a great honor to be president of The Rubber Association during this time. I have enjoyed the work, and I have valued the cooperation and admired the spirit which has actuated the whole country; and from various sources in Washington we hear that no industry in the country gave the Government better support than the rubber industry. I am very proud to have acted as your president during the year. I thank you.

#### DIRECTORS' MEETING.

THE new board of directors went into session after the annual meeting and elected the following officers:

##### OFFICERS.

President, Homer E. Sawyer, United States Rubber Co., New York City.

First vice-president, Harry T. Dunn, The Fisk Rubber Co., Chicopee Falls, Massachusetts.

Second vice-president, Frank A. Seiberling, The Goodyear Tire & Rubber Co., Akron, Ohio.

Secretary-treasurer, Harry S. Vorhis, The Rubber Association of America, Inc., New York City.

##### EXECUTIVE COMMITTEE.

Homer E. Sawyer, chairman, United States Rubber Co., New York City; Harry T. Dunn, The Fisk Rubber Co., Chicopee Falls, Massachusetts; Frank A. Seiberling, The Goodyear Tire & Rubber Co., Akron, Ohio; Bertram G. Work, The B. F. Goodrich Co., New York City; John A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey; William J. Kelly, Poel & Kelly, New York City.

##### FIRM AND ASSOCIATE MEMBERS ELECTED.

The following firm and associate members were elected on January 16, 1919:

##### FIRM MEMBERS AND REPRESENTATIVES.

Century Rubber Works, E. B. Tozier, 1346 Rawson street, Chicago, Illinois.

Narragansett Rubber Co., R. S. Emerson, Bristol, Rhode Island.

Needham Tire Co., H. A. Rambonnet, Charles River, Massachusetts.

Trenton Scrap Rubber Co., Isaac Fineburg, Trenton, New Jersey.

United States Rubber Plantations, Inc., Ernest Hopkinson, 1790 Broadway, New York.

Chippewa Rubber Co., Edward Hutchins, Eau Claire, Wisconsin.

The McLean Tire & Rubber Co., W. B. Davis, East Liverpool, Ohio.

The Columbia Tire & Rubber Co., W. G. Henne, Columbian, Ohio.

Pivin Tube & Rubber Co., A. S. Johnson, 1002 Michigan avenue, Chicago, Illinois.

The Marion Tire & Rubber Co., W. H. Holverstott, Marion, Ohio.

Fred T. P. Waterhouse, Fred T. P. Waterhouse, 82 Wall street, New York City, was transferred from associate to firm membership.

##### ASSOCIATE MEMBERS.

Arthur W. Lawrence, United States Rubber Co., 1790 Broadway, New York City.

#### DIVISIONS' MEETINGS.

MEETINGS of the following divisions were held on January 15 and 16, 1919, and officers elected for the ensuing year:

**MECHANICAL RUBBER GOODS MANUFACTURERS' DIVISION:** John J. Voorhees, chairman, Voorhees Rubber Manufacturing Co., Jersey City, New Jersey; W. H. Yule, vice-chairman, The B. F. Goodrich Co., Akron, Ohio; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** J. J. Voorhees, chairman, Voorhees Rubber Manufacturing Co., Jersey City, New Jersey; George E. Hall, Boston Woven Hose & Rubber Co., Cambridge, Massachusetts; Guy E. Norwood, The Republic Rubber Corp., Youngstown, Ohio; Henry Spadone, Gutta Percha & Rubber Manufacturing Co., New York City; W. H. Yule, The B. F. Goodrich Co., Akron, Ohio; J. H. Cobb, New York Belting & Packing Co., New York City; I. R. Bailey, The Goodyear Tire & Rubber Co., Akron, Ohio; John A. Lambert, Acme Rubber Manufacturing Co., Trenton, New Jersey.

**SOLID TIRE MANUFACTURERS' DIVISION.**—The Solid Tire Manufacturers' Division was organized and the following officers elected: A. J. Partridge, chairman, Firestone Tire & Rubber Co., Akron, Ohio; Joseph C. Weston, vice-chairman, United States Tire Co., New York City; H. S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** A. J. Partridge, chairman, J. C. Weston, and representatives of The Firestone Tire & Rubber Co., The B. F. Goodrich Co., The Goodyear Tire & Rubber Co., Hood Rubber Co., and the Kelly-Springfield Tire Co.

**PNEUMATIC TIRE MANUFACTURERS' DIVISION.**—The Pneumatic Tire Manufacturers' Division was organized and the following officers elected: George M. Stadelman, chairman, The Goodyear Tire & Rubber Co., Akron, Ohio; E. H. Broadwell, vice-chairman, The Fisk Rubber Co., Chicopee Falls, Massachusetts; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** George M. Stadelman, chairman, E. H. Broadwell, and representatives of the Kelly-Springfield Tire Co., Empire Rubber & Tire Co., Hood Rubber Co., The Miller Rubber Co., Portage Rubber Co., Firestone Tire & Rubber Co., General Tire & Rubber Co., Ajax Rubber Co., Inc., The B. F. Goodrich Rubber Co., Pennsylvania Rubber Co., United States Tire Co., Lee Tire & Rubber Co., and the Victor Rubber Co.

**RUBBER RECLAIMERS' DIVISION:** Francis H. Appleton, chairman, F. H. Appleton & Sons, Inc., Boston, Massachusetts; Clark W. Harrison, vice-chairman, Bloomingdale Rubber Co., New York City; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** Francis H. Appleton, chairman; Clark W. Harrison, vice-chairman; E. A. Anderson, Rubber Regenerating Co., Naugatuck, Connecticut; John S. Clapp, E. H. Clapp Rubber Co., Boston, Massachusetts; R. A. Low, United States Rubber Reclaiming Co., Inc., New York City; John S. Lowman, Philadelphia Rubber Works Co., Akron, Ohio; Joseph F. McLean, Pequannock Rubber Co., Butler, New Jersey.

**RUBBER SUNDRIES MANUFACTURERS' DIVISION.**—Charles J. Davol, chairman, Davol Rubber Co., Providence, Rhode Island; H. A. Bauman, vice-chairman, The B. F. Goodrich Co., Akron, Ohio; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** Charles J. Davol, chairman, Davol Rubber Co., Providence,

Rhode Island; Edward E. Huber, Eberhard Faber Pencil Co., Brooklyn, New York; S. H. Jones, United States Rubber Co., New York City; George B. Hodgman, Hodgman Rubber Co., Tuckahoe, New York; W. H. Balch, The Faultless Rubber Co., Ashland, Ohio; W. S. Davison, The Miller Rubber Co., Akron, Ohio.

**FOREIGN TRADE DIVISION:** E. H. Huxley, chairman, United States Rubber Export Co., Ltd., New York City; R. H. Daniels, vice-chairman, The Goodyear Tire & Rubber Co., Akron, Ohio; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** E. H. Huxley, chairman, United States Rubber Export Co., Ltd., New York City; Henry G. Tyer, Tyer Rubber Co., Andover, Massachusetts; William B. Laughton, Hood Rubber Co., Watertown, Massachusetts; A. R. Gormully, Ajax Rubber Co., Inc., New York City; A. S. Hardy, Manhattan Rubber Manufacturing Co., New York City; R. H. Daniels, The Goodyear Tire & Rubber Co., Akron, Ohio; C. G. McCullough, Pennsylvania Rubber Co., Jeannette, Pennsylvania.

**RUBBER PROOFERS' DIVISION.**—H. M. Dannenbaum, chairman, Schwarzwelder Co., Philadelphia, Pennsylvania; J. J. Clifford, vice-chairman, Plymouth Rubber Co., Canton, Massachusetts; Harry S. Vorhis, secretary and treasurer, The Rubber Association of America, Inc., New York City. **EXECUTIVE COMMITTEE:** H. M. Dannenbaum, chairman; J. J. Clifford; E. Bucher, Vulcan Proofing Co., Brooklyn, New York; J. V. McHose, Scioto Rubber Co., Columbus, Ohio; James Meade, Meade Rubber Co., Stoughton, Massachusetts.

#### FOOTWEAR DIVISION.

The following is the personnel of the newly organized Footwear Division: George H. Mayo, chairman, United States Rubber Co., 1790 Broadway, New York City; Francis S. Dane, vice-chairman, Hood Rubber Co., Watertown, Massachusetts; Harry S. Vorhis, secretary, The Rubber Association of America, New York City; Hugh Bullock, Converse Rubber Shoe Co., Malden, Massachusetts; Robert S. Emerson, Narragansett Rubber Co., Bristol, Rhode Island; A. S. Funk, La Crosse Rubber Mills Co., La Crosse, Wisconsin; W. G. Hill, Apsley Rubber Co., Hudson, Massachusetts; T. W. McDowell, Goodyear Rubber Co., Middletown, Connecticut; L. T. McCollum, Mishawaka Woolen Manufacturing Co., Mishawaka, Indiana; Francis R. McKenna, Bourn Rubber Co., Providence, Rhode Island; Ted Nicar, Firestone Tire & Rubber Co., Akron, Ohio; George W. Prall, Lambertville Rubber Co., Lambertville, New Jersey; J. A. Rishel, The B. F. Goodrich Co., Akron, Ohio; L. C. Warner, Beacon Falls Rubber Shoe Co., Beacon Falls, Conn.

#### TRAFFIC DIVISION.

The Traffic Division meetings were held at the Transportation Club, Manhattan Hotel, New York City, on January 15 and 16, when the following subjects in connection with domestic and foreign transportation problems were discussed: Advance in express rates; proposed elimination of exceptions to the official classification; standardization of statistical accounts in individual traffic departments of the association members and compilation of various statistics in this office; marking of cases containing crude rubber; trans-continental rates on rubber soling; trans-continental rates on rubber mats and matting; rates on crude rubber; ratings on tires under the Iowa State classification; consolidated classification as related to rubber and its products; permits for carload export shipments; lighterage of export freight in New York harbor; demurrage and storage in connection with export freight; priority movement for export freight in carloads; packing of rubber belting and hose; differential rates for export and import freight; rubber packing and tubing.

The Traffic Committee is composed of the following members: George F. Hitchborn, chairman, United States Rubber

Co., 1790 Broadway, New York City; R. G. Kreitzler, The Goodyear Tire & Rubber Co., Akron, Ohio; A. D. Phillips, The Fisk Rubber Co., Chicopee Falls, Massachusetts; E. R. Tragesser, The B. F. Goodrich Co., Akron, Ohio; A. L. Viles, manager, 52 Vanderbilt avenue, New York City; Harry S. Vorhis, treasurer, The Rubber Association of America, Inc., New York City.

#### RUBBER HEEL CLUB.

A meeting of the Rubber Heel Club of America was held at the Yale Club, New York City, on January 16, 1919. The officers are: president, Robert H. Cory, O'Sullivan Rubber Co., New York City; secretary, George H. Stetson, 370 Atlantic avenue, Boston, Massachusetts; directors: Robert H. Cory, O'Sullivan Rubber Co., New York City; C. H. Oakley, Essex Rubber Co., Trenton, New Jersey; Charles Measure, Federal Rubber Co., Milwaukee, Wisconsin.

#### COMMUNICATIONS OF THE RUBBER ASSOCIATION WAR SERVICE COMMITTEE DISCHARGED.

January 3, 1919.

*To all members of the rubber trade:*

The board of directors of The Rubber Association of America has decided that the work of the War Service Committee of the Rubber Industry shall terminate at the time of the annual meeting of the Association, January 16, 1919.

#### BLANKET GUARANTIES REQUIRED.

January 6, 1919.

*To importers, dealers and manufacturers:*

The War Trade Board has authorized a marked simplification in the procedure covering the disposition of rubber arrivals. Instead of individual guaranties, as now required from manufacturers and importers against each delivery, blanket guaranties, as per form "A" for manufacturers and form "B" for importers, will be all that is necessary from those whose guaranties have heretofore been acceptable to the War Trade Board.

#### FORM A.

##### MANUFACTURER'S GUARANTY.

WAR TRADE BOARD,

Washington, D. C.

Through the Rubber Association of America, Inc.

GENTLEMEN:

In consideration of your consenting to the delivery to me/us of crude rubber, gutta jelutong, scrap or reclaimed rubber, gutta percha, gutta siak and/or balata I/we agree to comply with all regulations of the War Trade Board as now in force or which may be promulgated affecting the importation and exportation of the foregoing commodities and manufactures thereof and to furnish on demand such information as the War Trade Board may require concerning the importation and disposition of said commodities and the manufacturers thereof.

.....  
(Signature of manufacturer.)

Date .....

#### FORM B.

##### IMPORTER'S GUARANTY.

WAR TRADE BOARD,

Washington, D. C.

Through the Rubber Association of America, Inc.

GENTLEMEN:

In consideration of your granting to the undersigned licenses to import crude rubber, gutta jelutong, scrap or reclaimed rubber, gutta percha, gutta siak and/or balata, I/we hereby agree to comply with all regulations of the War Trade Board as now in force, or which may be promulgated, affecting the importation and exportation of the foregoing commodities and to furnish on demand such information as the War Trade Board may require concerning my/our importation and disposition of such commodities.

I/we also agree not to dispose of any of the aforesaid commodities except to such firms or individuals as shall have executed the agreements required by the War Trade Board.

.....  
(Signature of importer.)

Date .....

The following formalities, heretofore required, are dispensed with:

1. Filing of importers' and manufacturers' guaranties against each delivery.
2. Filing by importers with the Association of transportation or other receipt as proof of delivery.
3. Receipts from manufacturers.
4. Warehousing of rubber in the name of the Rubber Association of America, Inc., by importers.

leaving the control exercised by the War Trade Board substantially as follows:

- (a) Conditions outlined in the guaranty.
- (b) All rubber shall continue to be consigned to The Rubber Association of America, Inc.
- (c) Importers to make application for endorsement of bill of lading on Form "C," and if required by the War Trade Board, to report the disposition of the commodity covered by the bill of lading.
- (d) Importing manufacturers will make application for endorsement of bill of lading on Form "D."
- (e) The Association will enter the particulars given in said application upon their records for the information of the War Trade Board.

Manufacturers will please sign Form "A" and importers Form "B" and return as early as possible.

Inasmuch as this will do away with a great deal of clerical work now employed in keeping the records, a substantial decrease, effective January 10, 1919, in certain registering charges, has been authorized by the executive committee of the Association. They will be as follows:

Crude rubber, balata and gutta percha.....5c per 100 lbs.  
Gutta siak and Pontianak.....2½c per 100 lbs.  
Supplies of forms "C" and "D," to be used for making application for endorsement of bill of lading, can be obtained upon request to the secretary.

#### CRUDE RUBBER IMPORTS PRACTICALLY UNRESTRICTED.

JANUARY 20, 1919.

#### To importers, brokers and dealers:

The following two advices of importance have been received from the War Trade Board:

(a) Circumstances have now permitted the removal of the control which the War Trade Board has previously exercised through this Association over importations of crude rubber, jelutong, balata, gutta siak, gutta percha, scrap and reclaimed rubber.

Hereafter, therefore, import licenses for these commodities will not require that bill of lading be endorsed to the Association, and Collectors of Customs have been advised to disregard this provision on all outstanding licenses for said commodities.

(b) The War Trade Board announce that, effective immediately, all American Consuls have been instructed to consulate invoices covering all unrestricted commodities without the necessity of the production of United States import license number.

This will make it unnecessary for importers to cable license numbers on unrestricted commodities and thereby simplify the import procedure.

All Collectors of Customs have been advised of the withdrawal of this regulation, and furthermore instructed to permit entry of merchandise covered by unused and outstanding licenses for unrestricted commodities provided license is otherwise in order, without regard to license numbers.

The War Trade Board desires to impress upon importers for their own protection and to avoid the possibility of shipments being made for which license may be refused, on account of failure to observe the enemy trade regulations, or for other reasons, that they should obtain import licenses before shipments are effected.

From the contents of the above it will be observed:

1. That shipments of the commodities mentioned should no longer be consigned to The Rubber Association of America.
2. That importers of crude rubber are no longer under the necessity of cabling license number to their shippers.

#### COMMITTEE ON RUBBER & KINDRED PRODUCTS.

"Rubber Machinery," by Henry C. Pearson, is filled with valuable information for rubber manufacturers. Price, \$6.

#### RUBBER FOOTWEAR SEASON IN CANADA.

The revised price list on rubber footwear has been issued in Canada a month earlier than usual, pursuant to an agreement made by the middle western jobbers with the manufacturers. This permitted salesmen in Manitoba, Saskatchewan, and Alberta to start out on January 15 with both rubber and felt lines. No samples will be carried, all sales being made from catalogs, thus saving expense and time. The fact that there are practically no new styles this year made this procedure possible.

The season in British Columbia, Ontario, Quebec, and the Maritime provinces will open March 3 as usual.

#### THE DUNLOP GREATER PRODUCTION PLAN.

In 1914, the Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ontario, increased its property holdings by leasing 14 acres in East Toronto, primarily as a recreation ground. Events since then have made it desirable to use part of the space for gardening. About eight acres are now under cultivation, the balance being used by the Dunlop Amateur Athletic Association for all kinds of outdoor sports. The first gardens were laid out in the spring of 1914, before the war started. No less than one hundred gardens are being worked, with the possibility of half as many more for next spring. The Toronto Rotary Club has assisted in the garden work. One Dunlop employee produced on his plot, during 1918, the following vegetables: 18 bags of



A PART OF DUNLOP FIELD IS DEVOTED TO EMPLOYEES' GARDENS.

potatoes, 700 pounds of turnips, 200 pounds of parsnips, 300 pounds of carrots, 500 pounds of beets, 100 pounds of dried beans, 75 pounds of string beans, one-half ton of onions, 15 baskets of tomatoes, 300 cabbages, 85 heads of celery, lettuce and radishes by the bagful, brussels sprouts, etc.

The Dunlop company also operates a large lunch-room where hot coffee is served daily to employees who bring their lunch. There is, in addition, a lunch-room for the office staff where a wholesome meal can be had at less than cost. Adjoining are a reading and rest-room and a fully equipped hospital-room with a qualified nurse in attendance.

Bowling has been encouraged and also all sporting events having to do with the bicycle, motorcycle, or automobile. The Dunlop trophy race is an example of the extent to which the company goes in promoting the automobile or bicycle business, besides its prizes for sporting events throughout Canada.

A successful picnic, many football matches and various events in aid of the community have been held on Dunlop Field.

#### SWEDISH FACTORY DOUBLES CAPITAL.

The Helsingborg Rubber Manufacturing Co. of Helsingborg, Sweden, has recently increased its capital from 3,000,000 to 6,000,000 kroner.

## Guayule Cultivation a Success.<sup>1</sup>

*In response to scores of requests the following article, written by the Editor of THE INDIA RUBBER WORLD, which appeared in this paper in July last, is reprinted. The writer is well aware that the story is startling and almost unbelievable, but after further examination of existing plantings, he discovers no reason to change the opinion first formed or in any way to modify the original statement.*

ONE must go back at least ten years. Of all the companies operating in Mexico, one was preeminent, in product, processes, and in vast holdings of land. It was an American concern, with ample capital, and unusual administrative talent. To those in charge it was perfectly apparent that the time would come when the wild guayule fields would be exhausted and the business stop entirely or shut down until new plants matured. Whether regrowth could be induced or the shrub be raised from seed or cuttings, none knew. Most of those who were asked con-

established laboratories and experimental plants, and the work on a commercial scale actually commenced.

Prior to the actual planting for commercial product, the plant was practically remade to meet the necessities in the case.

### AS TO SEED SUPPLY.

The seed of the guayule is very minute, and if one examines the desert plant, very unsatisfactory. In the heads that should hold good seeds will be found half-developed dried husks of seeds and very few good ones. As vital seed, and plenty of it,



GUAYULE SEED BEDS.

cerning this were positive in their declarations that it would never yield to profitable cultivation. The actual head of the company, a man of broad vision, although careful and conservative, believed that with sufficient effort the impossible could be done. Under his direction, therefore, the work was begun.

### MEXICAN PRELIMINARIES.

The first thing was the selection of a crop of chemists, botanists, plant physiologists, and experts in desert plants. For this they drew men from agricultural colleges, desert laboratories and experiment stations, arranging to send their notes and conclusions to these seats of botanical learning, receiving from them knowledge in return. This body of men, which was added to from time to time, embraced such well-known names as Dr. Francis E. Lloyd, Dr. Theodore Whittelsey, Dr. J. E. Kirkwood, Professor C. L. Hare, Professor J. P. C. Southall, Dr. W. B. McCallum and half a score of others.

These scientists took up the following subjects and exploited them most thoroughly. Geographical and altitudinal distribution, climate, air and soil temperatures, rainfall, soil moisture, and relative humidity, analysis of soils and of plants under all conditions, diseases, effects of drouth, rain and of irrigation; seeds, leaves, flowers, stems and roots were subjected to the closest scrutiny, under a multiplicity of conditions, and the results all tabulated.

In time their work begun in Mexico was transferred to the United States, notably to California and Arizona. Here were

is an essential, the guayule trainers took hold of the shrub, planted it under varying conditions, fed, watered, starved, and petted it until it was learned positively just what conditions were necessary to full seed pods. In time the barren seed vessels became full ones, and the treatment necessary to get this result became a matter of record.

### GERMINATION.

It may not be generally known, but seeds of some plants, seeds that are vital, and that should germinate without difficulty, refuse to do so. This seems to be particularly true of certain desert growths. For example, there is a cactus distributed very generally through the southwest that bears seeds in abundance. So far, however, no one has been able to get these seeds to germinate. It was not on the cards that guayule should prove to be in this class. It promised so many other disabilities that it did not seem possible that it had this also. Nevertheless when the first bushel of seeds was carefully sown not one germinated. And so it was with succeeding lots. There was nothing to do but sow smaller lots under every condition that could be thought of, and learn just what was required. For a long time only failure resulted and gloom settled on the experimenters. Then an accident pointed the way and soon this problem, too, was solved.

### SPEEDING UP THE GROWTH.

The problem of speeding up the growth of the plant was one of the most interesting and vexing of all. Left to itself in its desert home under normal conditions, a guayule seedling takes some twenty years to arrive at maturity, that is, as a rubber-bearing proposition. It grew a little at a favorable season each

<sup>1</sup>From "Production of Guayule Rubber," by Henry C. Pearson. Commerce Report No. 149, June 26, 1918.

year. The rest of the time it existed, did not grow, nor do anything but sleep. Now, it is exceedingly difficult to get tree, shrub, or plants to do anything that they and their forebears have not previously done. They are hidebound in their prejudices, rock-ribbed as to their habits. They have no ambition to speed up, to be efficient, to be different. These plant prejudices must first be understood and habits broken by coaxing, cajoling and fooling. For example, the guayule habit of a slight growth in the spring once a year was noted by the plant physiologist, who took advantage of it in this way. He furnished a simulated spring and the guayule responded, then before it could settle back for months of rest, another spring was sprung. If done at the exact psychological moment the plant responds. Again and again was this done, and the plant, having no method of checking up its rapidly recurring seasons, attained a lusty growth in record time. By this method the fifteen-year development that the shrub was accustomed to, and that it prefers, was accomplished in four years.

#### VARIETIES OF SHRUBS.

One of the very interesting preliminaries in guayule cultivation was the study of varieties. To the average guayule expert there were but two types of plants, the *Parthenium Argentatum* which is the rubber producer, and the Mariola, *Parthenium Icanum*, which much resembles it but contains no rubber. From the beginning, the botanists began to segregate the rubber-producing species into a great variety of types. The new species, the *Parthenium Lloydii*, named after Professor Francis E. Lloyd, is one of these varieties, characterized by differences in leaf, flower, root growth, rubber content, etc., etc. Dr. McCallum, in whose desert laboratory the most of this work was done, published a statement in "Science" long ago that he had found 125 different species. He told the writer that his records showed to date more than 900 different guayule growths and that the list was still growing.

#### THE RUBBER CONTENT.

From the beginning of the experiments much care was taken in the analysis of thousands of shrubs to learn all that could be

over. The facts tabulated showed that there was a wide difference in the amount of rubber in the different shrubs. This ran from one per cent to ten per cent to twenty per cent, and in rare cases to twenty-seven per cent. Manifestly seed from the one per cent would not pay to collect, much less to plant. The poorer qualities were therefore thrown out and plants that were big producers were selected as seed bearers for the future cultivated shrub.

#### QUALITY INVESTIGATION.

Guayule rubber has not been considered to be of the highest grade. When it first came upon the market its resin content was so high and it was so soft that it was accepted with reluctance. Indeed certain importers for years refused to allow that it was rubber at all and scornfully dubbed it a substitute. In time, however, by new methods of extraction, and by deresination, it came into its own as a valuable crude rubber and was used by the millions of pounds.

The searchers for guayule secrets, when they began to test the quality of the rubber in different plants, learned some more surprising truths. Some of the shrubs gave simply a black resinous paste that contained not enough rubber for extraction. Others contained rubber with say twenty per cent of resin, the type that the whole trade is familiar with. A few, however, yielded a firm hard product, low in resin and showing to a remarkable degree the "nerve" that is so characteristic of the best crude rubber.

The result was, of course, that the best producers were planted as seed bearers for cultivated guayule.

Nor was that all. By hybridization, that is the wedding of the big producers with the best producers, plants were produced that had the good qualities of each. Therefore with a big, best producing seed stock the real cultivation of guayule was well on the way toward success.

#### SOLVING THE LABOR PROBLEM.

In an age when almost everything is done by machinery, the growing of india rubber, particularly the tapping and gathering, is hand work entirely. Without vast gangs of coolies the production of rubber in any considerable amount seems impossible.



A FIELD OF CULTIVATED GUAYULE.

learned concerning the rubber content in them. First of all, the portions of the plants containing rubber were cataloged. This was important in determining whether it was wiser to uproot the plant for the sake of the rubber in the roots or to cut it off above the roots, leaving them to produce new growths. With cultivation in sight, however, there was much more to be learned than the portion of the plant richest in rubber. That was whether the ten per cent of rubber, the rough estimate of the whole rubber content, was at all variable. The results of the analyses were so astounding that they were done several times

With the cultivation and collection of guayule rubber, however, machinery takes the place of men, and in almost every part of the work. The preparation of the fields is done by disk harrows drawn by tractors. The planting by specially built machines, similar to tobacco planters that plow four furrows, set the plants at the proper intervals, cover them in and pack the earth about the roots. One machine plants eighteen acres a day. The cultivating is also done by machinery. For gathering there are two systems; one cutting the rows down by a harvesting machine, the other plowing the plant out root and all, as 'n the harvesting of

the sugar beets. The extraction of the rubber is also, of course, wholly mechanical. In the event that the rubber is deresinated, that is also done by machinery and follows the well-known process.

Guayule growing in a large plantation involves a laboratory for examining and testing plant and product, a small greenhouse for seed experiment and hybridization, outdoor plants for seed bearing, seed beds protected by lattice windbreaks, an irrigation system, planting and harvesting machinery, an extraction plant, and above all, knowledge of the plant, and how to handle it, and plenty of capital.

### RUBBER TRADE INQUIRIES.

*THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.*

(686.) A manufacturer inquires where he can buy black stamping ink for use on cold-cured pure gum articles, the ink to be unaffected by the curing solution and not to rub off after goods have dried.

(687.) A correspondent desires the address of the manufacturer of Brandt's cement.

(688.) An inquirer asks for the addresses of concerns furnishing supplies for the manufacture of rubber stamps.

(689.) A request has been received for the addresses of concerns that can use hard-rubber battery jars as scrap material.

(690.) A subscriber requests the addresses of several manufacturers of combination stoppers for hot-water bottles.

(691.) A correspondent desires plans for model rubber-tire manufacturing plants.

(692.) A subscriber asks where he can purchase machinery for the manufacture of hard-rubber combs.

(693.) A manufacturer requests the addresses of makers of aluminum inner-tube poles.

(694.) A correspondent desires addresses of manufacturers of bone naphtha or Dippel's oil.

(695.) A correspondent inquires for the addresses of concerns manufacturing tread-punching and stud-setting machines.

(696.) An inquiry has been received for data or the name of some standard work dealing with figuring costs for the production of rubber tape and coated fabrics.

### TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Addresses may be obtained from the Bureau of Foreign and Domestic Commerce or its district or cooperative offices. Request for each should be on a separate sheet, and state number.

(27,917.) A commercial agent in the Netherlands wishes to secure an agency for the sale of rubber goods, first and second qualities, for technical and surgical purposes. Terms, cash with discount of 2½ per cent, or 30 days, 2 per cent discount. Correspondence may be in English.

(27,933.) A man in France desires to secure an agency for or will purchase raincoats. Terms, payment against documents. Correspondence should be in French.

(27,943.) An agency is desired by a man in Norway for the sale of elastic webbing. Quotations should be made f. o. b. New York. Payment to be made cash against documents, confirmed New York credits established. Correspondence may be in English.

(27,956.) A man in Italy desires to secure an agency for the sale of all rubber articles for druggists. Correspondence should be in French or Italian.

(27,958.) A citizen of Costa Rica, who is at present in the United States and about to return to that country and Cuba as

a traveling salesman, desires to secure agencies for the sale of automobile supplies. Terms, cash in New York.

(27,959.) An agency is desired by a man in France for the sale of motor-car accessories throughout Roumania and the Balkan States. Correspondence in French preferred.

(27,962.) An agency is desired by a man in Italy for the sale of rubber goods of all kinds. Correspondence may be in French and Italian.

(27,964.) A partner of an import and export firm in France, who is now in this country, wishes to be placed in communication with large manufacturers with a view to securing agencies for the sale of rubber goods.

(27,988.) A firm in France desires to purchase, for immediate delivery, motorcycle and bicycle accessories. Terms, cash in New York.

(28,016.) A man in Italy desires to secure an agency for the sale of rubber articles. Correspondence should be in French or Italian.

(28,035.) A business man in Algeria desires to purchase or secure an agency on commission for the sale of raincoats for men. Correspondence may be in English.

(28,036.) A man in Italy desires to purchase or secure an agency for the sale of motorcycle accessories. Cash will be paid. Correspondence should be in Italian or French.

(28,051.) An agency is desired by a man in France for the sale of automobile accessories. Correspondence may be in English.

(28,054.) A firm in Italy desires to purchase and also secure an exclusive agency for solid rubber tires for passenger cars and trucks. Correspondence should be in Italian.

(28,080.) A Frenchman, who is now in this country, desires to secure an agency for automobile accessories.

(28,081.) A firm in Italy desires to secure an agency for the sale of automobile accessories. Correspondence should be in French or Italian. Catalogs should be sent and samples also, where possible.

(28,089.) A man in Italy desires to secure an agency for the sale of bicycle accessories. Correspondence may be in English.

(28,093.) A firm in Italy desires to purchase or to secure an agency for the sale of rubber tires. Quotations should be made f. o. b. Terms, cash, with discount, through bank. Correspondence may be in English.

(28,095.) A firm of Chinese merchants in Trinidad desires to secure an agency for the sale of rubber tires.

(28,106.) An agency is desired by a man in France for the sale of motor-car accessories and belts. Correspondence should be in French.

(109,220.) A market for inexpensive toys exists in Algeria; also for sporting goods, and games. A list of the principal dealers in toys may be obtained from the Bureau of Foreign and Domestic Commerce or its district and cooperative offices.

### UNITED STATES GOVERNMENT SALES.

The Material Disposition Section, Chemical Warfare Service, U. S. A., 19 West 44th street, New York City, offers the following equipment and material for sale:

A newly constructed steel building, with its equipment, located in Astoria; material from several large plants in Long Island City, formerly employed in making gas masks, gas and other products. Also grinding material, leather belting, shafts, locomotive cranes, cloth cutting machines, cloth presses, rubber testing machines, laboratory apparatus and chemicals, lathes, milling and sewing machines, platen cutting and creasing presses, piping and fittings, rubberized fabrics suitable for raincoats, ponchos, rubber boots and high-grade rubber specialties, fabrics used in manufacturing gas masks, specially prepared fabrics, absolutely waterproof binder fabric suitable for raincoats, elastic tape, chemicals, steel drums, laundry machinery and all classes of office furniture and accessories.

In addition, about forty carloads of gas masks, besides their parts, are scheduled to be sold at the highest bidders.

## Echoes of the Great War.

### SUPPLEMENTAL INFORMATION SHEET X-2 NO LONGER REQUIRED.

THE War Trade Board announced under date of January 4, 1919 (W. T. B. R. 477), that applicants for export licenses will no longer be required to attach to their application Supplemental Information Sheet X-2, except in the case of applications for the exportation of arms, ammunition or explosives.

### PROCEDURE GOVERNING EXPORTS TO HOLLAND AND DENMARK.

The War Trade Board announces in a new ruling (W. T. B. R. 500) that exporters in the United States, before filing application for export licenses must obtain from the prospective importers in Holland or Denmark advice by mail or cable that there has been issued by the Netherlands Overseas Trust, in the case of Holland, or by the Danish Chamber of Manufacturers, or Merchants' Guild of Copenhagen, in the case of Denmark, a certificate permitting the importation of the proposed consignment. The number of the certificate should be forwarded by the importer in Holland or Denmark to the American exporter, by cable or mail, either directly or through the Netherlands Legation, Washington, if for Holland, or the Danish Trade Commission, Washington, if for Denmark.

Henceforth the details of all the import certificates issued in Holland or Denmark will be transmitted by the Netherlands Legation or the Danish Trade Commission in the United States to the War Trade Board, Washington. All inquiries regarding import regulations and certificates should be addressed, for Holland, to Dr. W. H. de Beaufort, Counsellor of Legation, 1800 Connecticut avenue, N. W., Washington, D. C., or, for Denmark, to Mr. N. P. Arnstedt, Danish Trade Office, 1838 Connecticut avenue, N. W., Washington, D. C. Inquiries concerning Denmark can also be addressed to the Danish Consul General, 8-10 Bridge street, New York City.

### PROCEDURE GOVERNING EXPORTS TO SWEDEN.

The United States War Trade Board has been advised that the Swedish rubber import association will accept, on behalf of the Swedish importer actually interested, consignments of rubber and rubber goods, when the shipment is covered by a certificate of the said association. All inquiries regarding the numerous Swedish import regulations and import certificates should be addressed either to A. R. Nordvall, Special Commissioner, 1325 18th street, N. W., Washington, D. C., or else to the Swedish Commission Trade Office, 60 East 42nd street, New York City. All Swedish import questions or difficulties relating thereto should be settled before filing applications with the United States War Trade Board.

### PROCEDURE GOVERNING EXPORTS TO NORWAY.

In accordance with War Trade Board Ruling 497, exporters in the United States, before filing applications for export licenses, must obtain from the prospective importer in Norway advice by mail or cable that there has been issued by an appropriate import association, or by the Norwegian Finance Department, a certificate permitting the importation of the proposed consignment. This certificate must be either issued or confirmed subsequently to May 10, 1918. The number of this certificate must be forwarded by the importer in Norway to the American exporters, either directly or through the Norwegian Legation in Washington.

Hence the details of all the important certificates issued in Norway will be transmitted by the Norwegian Legation to the War Trade Board in Washington. All inquiries relating to regulations and certificates should be addressed to the Norwegian Legation, Commercial Department, Washington, D. C.

### EXPORTATION TO RUSSIA.

In accordance with War Trade Board ruling No. 470, export licenses will henceforth be issued to approved consignees for the shipment of all non-conserved commodities to Siberia. It is no longer necessary to consign shipments to that country to the War Trade Board representative at Vladivostok.

Applications should be submitted on Form X, to which should be attached such supplemental information sheets as are required by the rules and regulations of the War Trade Board for the exportation of certain commodities. No other supplemental information sheets are required, and no import licenses need accompany the application.

### SERVICE NOTES AND PERSONALS.

Corporal John D. La Flesh, former factory cost clerk of The Fisk Rubber Co., Chicopee Falls, Massachusetts, has been cited for gallantry in action by Major-General Clarence R. Edwards, formerly commanding the 26th Division.

Ellis Harlow, son of Robert C. Harlow, the president of the Monatiquot Rubber Works Co., South Braintree, Massachusetts, is particularly commended for bravery in Major Carroll Swan's new book, "My Company." This company, before the war, was of the well-known military organization, First Corps Cadets, and is now part of the famous 101st United States Engineers, still overseas.

Corporal Charles Marston, of the Loyal North Lancashire Regiment, has been awarded the Military Medal for gallant conduct and devotion to duty on the field. He was formerly employed by the Leyland and Birmingham Rubber Co., Leyland, England.

Auguste Choteau, vice-president of Bittel-Leftwich, Lindell Boulevard and Grand avenue, St. Louis, Missouri, a tire repair and service organization, is a lieutenant in France.

Lieutenant A. Klipstein, Jr., lately attached to the General Staff, having been discharged from the Army after 18 months' service, has taken up his former connections with A. Klipstein & Co., dealers in chemicals, 644-652 Greenwich street, New York.

Sergeant Edward Martin, son of A. W. Martin, plant manager of the Chelsea, Massachusetts, mill of Everlastik, Inc., has been cited for bravery by Major-General Clarence R. Edwards, formerly commanding the 26th, or Yankee Division. After all the stretcher-bearers attached to B Company, 102d Machine Gun Battalion, had been killed, Sergeant Martin volunteered to go out into No Man's Land and bring in the wounded. Although badly gassed he escaped otherwise unharmed. While convalescing in the hospital he volunteered for a blood transfusion which saved another soldier's life.

### MARTYRS TO THE CAUSE OF LIBERTY.

Major F. A. Robinson, M. C. (with bar), 10th Tank Battalion, has been reported killed in action at Catillon, near Le Cateau, France. He was formerly in the electric light department of the India Rubber, Gutta Percha and Telegraph Works Co., Silvertown, England.

John J. Connolly, a private in the 327th Infantry was killed in action on October 12, 1918. He was employed at the Valley Street plant of the Revere Rubber Co. before enlisting.

Eugene F. Laforest, a member of E Company, 301st Engineers, died of bronchial pneumonia in France on December 12, 1918. Prior to entering the Army, he was employed by the Glendale Webbing Co.

Corporal Ernest Munroe, who is reported to have died in France of bronchial pneumonia, was a clerk with the National India Rubber Co., at the time of his enlistment in A Battery, 103rd Field Artillery, Rhode Island National Guard.

## Application of Catalysis to Vulcanization.<sup>1</sup>

*Specially Contributed by André Dubosc.*

THE part played by sulphhydric acid, produced by the action of resins during vulcanization, having been explained, let us see what can be the part played by sulphocyanic acid ( $CN_2HS$ ) which is formed by the action of the proteins, of the glucosamine on the polymeric sulphur at the temperature of vulcanization.

The part it plays is very simple, it is that of a condensator which determines the polymerization and therefore the increase of resistance to breaking of the caoutchouc.

—S—

The sulphocyanic acid,  $C—N_2H—$ , has four free valences.

It is therefore susceptible of saturating two double combinations belonging to two different molecules of caoutchouc molecules, the other double combinations of which have been saturated by colloidal sulphur.

We can therefore appreciate the justice of the observations of Lock and Bamber, who declared that the purer a gum is, the freer it is from proteins, the less (after vulcanization) is its resistance to rupture and, therefore, its polymerization. Nature has therefore placed in the gum the elements necessary to its vulcanization and its polymerization, the resins which act as accelerators, the proteins which, in the presence of sulphur, form a condensator which determines the polymerization. Can we reproduce at will, synthetically, by the aid of simpler and more energetic products than the natural proteins and resins, these conditions which analysis has revealed to us? We cannot doubt it, for we know a certain number of nitrogenous substances, which, when heated with sulphur and carbon, are capable of producing abundantly sulphhydric acid and sulphocyanic acid. These reactions of formation are produced, for example, in the distillation of coal which contains nitrogen, sulphur and carbon.

This does not mean that coal can act in caoutchouc during vulcanization, the same as proteins and resins act, for the simple reason that the reactions which we have described take place in the case of coal only at temperatures at which the gum would be entirely destroyed.

A substance cannot act as catalyzer during vulcanization, substituting itself for the useful substances which the natural gum contains, and producing effects which are similar, but more rapid, more complete and extensive, unless it rigorously fulfills certain conditions.

It must contain, in proper proportions, the quantities of carbon, hydrogen, oxygen and nitrogen necessary to produce the compounds reacting in the vulcanization, that is to say, the sulphhydric, sulphurous and sulphocyanic acids. It must be dissociated at the temperature of vulcanization, 135 to 145 degrees C., so that, in the presence of sulphur, the hydrogen, oxygen, nitrogen or the cyanhydric acid necessary to the formation of the bodies named, may be set free. It must, therefore, meet both chemical and thermo-chemical requirements.

<sup>1</sup>Continued from THE INDIA RUBBER WORLD, November 1, 1918, page 80.

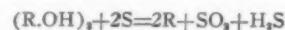
Further, the accessory products of the dissociation must have no bad effect on the caoutchouc during the curing, must not produce a disagreeable, persistent odor, and must cause no change in the final product.

Considering the varied results expected from these substances, we can already see that, from the point of view of classification, we must attribute two principal functions to them: (1) a function of acceleration which, in the presence of sulphur, at a proper temperature, will enable them to form sulphhydric acid and sulphurous acid; (2) a function of vitalization which, in the presence of sulphur, at the temperature of vulcanization, enables them to form a condensator, the sulphocyanic acid, capable of producing the polymerization of the gum.

A complete catalyzer must be at one and the same time: (1) a sulphhydric accelerator, (2) a sulphurous accelerator, (3) a sulphocyanic condensator.

Certain substances have two functions and three characteristics, others have one function and two characteristics, while others have two functions and two characteristics. Some have only the function of sulphhydric accelerators; they are the compounds which in dissociating at 135 degrees C. furnish hydrogen or acetylene, substances which, in the presence of sulphur, produce in their turn sulphhydric acid. This is the case of the resins and of a good many of the bases of the fat series. These catalyzers are of only very little interest.

Others have the function of sulphurous accelerators, such as the metallic oxides, as litharge, and the part they play is so well known as to render further explanation unnecessary. There are others which have the full accelerating function; they are sulphhydric accelerators as well as sulphurous accelerators, such as the easily decomposable organic hydroxide compounds which, in the presence of sulphur, give sulphurous acid and sulphhydric acid.



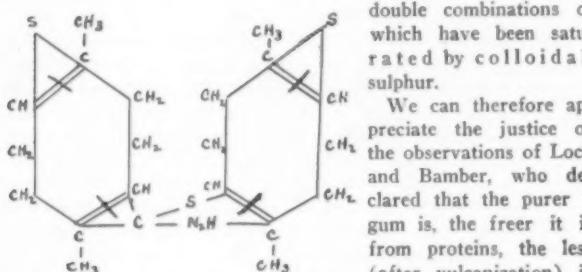
This is the case with certain alcohols and of most phenols. Certain members of the terpene series, such as camphor, behave in the same way and have two accelerating qualities. Other compounds possess only the vitalizing function and can produce only sulphocyanic acid, for example, cyanhydric acid and most of the cyanides; they yield their maximum effect only in the presence of other compounds, such as sulphide of carbon, which brings them a complement of carbonated elements.

Finally certain substances, which are complete catalyzers, have both functions and are at the same time sulphhydric and sulphurous accelerators and vitalizers; such are the dinitrated derivatives of the amines as paranitroso dimethylaniline.

Besides these different catalyzers, we must mention a class perhaps even more interesting, that of the nitrogenous thio-compounds which can, besides acting as complete catalyzers, furnish in a colloidal state all the sulphur necessary for vulcanization. Such, for example, is thio-carbaniilide.

It can be seen that, from the chemical point of view, the number of compounds that can facilitate, hasten and improve vulcanization, is considerable. Thermochemical reasons, based on the necessity of their dissociation, show that the most interesting ones are those whose dissociation constants are greater than  $1 \times 10^6$ .

Those which meet this last requirement are still rather numerous and we have been able to test the results of about a hundred of them. Bearing in mind the divisions which we have



CONDENSATION OF TWO MOLECULES.

been using, we shall study some types belonging in each category.

Among the sulphydric accelerators we may reckon the resin oils, crude petroleum, waxes and ozokerite, certain bitumens, sodium, calcium, potassium in the form of paraffinated powder, tannin, and turpentine. These substances permit the rapid formation of sulphydric acid, they diminish a little the length of time necessary for curing and, above all, they allow the work to be done at a lower temperature. They must be classified according to whether the vulcanization takes place with dry heat, under pressure, by steam, or with hot air with or without pressure. A substance which behaves admirably in one case acts badly in another. A group of sulphydric accelerators corresponds to every source of heat. This remark is general and applies not only to accelerators, but also to vitalizers, and to vitalizing accelerators.

Sulphurous accelerators are found chiefly among the metallic oxides and peroxides. We have long known the action of litharge and of light magnesia, of which the accelerating qualities have been empirically demonstrated.

Iron oxide has similar qualities but it seems that they attain their maximum effect only in the presence of brown fuchites.

The oxide of manganese, especially Weldon's earth, is a good accelerator, but must be used in very small quantities, as it reacts on the caoutchouc, oxidizes it and makes it easy to break.

Black copper oxide cannot be used, but the red oxide is an excellent accelerator; a one per cent mixture easily vulcanizes in 30 minutes: but, unfortunately, this oxide gives a green color to the gum.

Peroxide of zinc, peroxide of magnesium, peroxide of sodium, the alkaline carbonates and persulphates and the plumbates, in quantities of 0.5 to 0.2 per cent, are good sulphurous accelerators.

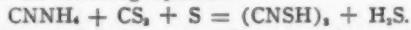
The same thing can be said of the mixture of chlorate of barium and vanadium salts, but all these substances must be used in very small quantities, with great precaution and, as far as possible, in the presence of sulphydric accelerators, such as resins or lanolin. Their use shortens the time necessary for vulcanization and allows lowering the temperature for the reaction.

The importance of these has greatly diminished since the discovery of vitalizing accelerators by using which both reactions can be obtained at the same time, without risking injury to the quality of the manufactured product.

Certain substances which are also classed among the accelerators can give both the sulphurous and the sulphydric reaction; they are those containing easily decomposable hydroxides. Certain alcohols, such as amyl alcohol, glycerine, terpineol, most of the phenols, particularly the diphenols, have these qualities. They accelerate vulcanization, but as their dissociation takes place only at a rather high temperature, no lowering of the heat during curing is possible.

We can include in this class also several alkaline oxides, such as sodium, potassium and barium hydrate, of which the accelerating action has long been known. The rapidity with which alkaline-reclaimed rubbers vulcanize is due to the presence of traces of sodium which acts to accelerate cure.

As a real vitalizer we can mention hardly anything but cyanhydric acid or the alkaline cyanides. The best is the cyanide of ammonium ( $CNNH_4$ ), but it can be used only in the presence of sulphide of carbon. The reaction takes place according to the following equation:

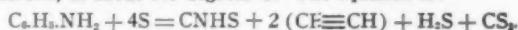


The substance behaves under these conditions as an accelerating sulphydric vitalizer.

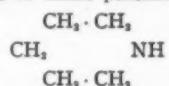
The addition of the vitalizer (mixture of cyanide of ammonium and of sulphide of carbon saturated with sulphur) is made when the mixture of the caoutchouc and charges is finished,

and the incorporation is insured by mixing on cold rolls to prevent too rapid evaporation of the sulphide of carbon. One can slacken this evaporation to a certain extent by adding tetrachloride of carbon to the sulphide, part for part. On account of their poisonous qualities, the use of cyanides cannot be recommended.

The sulphydric accelerating vitalizers are the most numerous and, practically, the easiest to use. Theoretically, every organic base, all amines and all imines can, under certain conditions, give the reaction of vitalization and of sulphydric acceleration. Such is the case of aniline, one of the first substances used as an accelerating vitalizer. The reaction is rather complex. In the presence of sulphur the benzene ring is broken up, forming a molecule of sulphocyanic acid, a molecule of sulphydric acid, two molecules of acetylene and one molecule of sulphide of carbon, at about 140 degrees C. The equation is:



In the class of the imines we can mention as giving very good results, piperidine or imino pentane:



The reaction again takes place by the breaking up of the ring, forming acetylene, sulphocyanic acid and sulphydric acid. The equation is:



A mixture composed of plantation crêpe, 60 parts; oxide of zinc, 33 parts; sulphur, 6 parts, and piperidine, 1 part, gives, under three atmospheres, a well-vulcanized product in 40 minutes and the following physical constants:

Breaking strength per square millimeter..... 1.905 grams  
Elongation at break..... 5.9

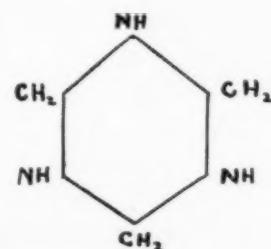
Permanent elongation..... 1.08  
In order to obtain a perfect result it is necessary to add the piperidine to the sulphur before making the mixture. The crêpe and the oxide of zinc are uniformly mixed and the steam shut off from the rolls before the mixture of sulphur and of piperidine is added. The mixture must be allowed to rest 24 hours before being cured.

Paraphenylene diamine, aldehyde ammonia, sodium amide, benzylamine, naphthylene diamine, and all quaternary ammonium bases behave in the same way. Among these substances it is best to choose, as being the most energetic, those which can furnish most sulphydric acid and most sulphocyanic acid.

From this explanation it seems that the more atoms of nitrogen an amined or imined compound substance has, the greater will be its energy as a vitalizer. This is not always true, for, besides the nitrogen, the atoms of carbon and of hydrogen necessary to form the active bodies, sulphydric acid and sulphocyanic acid, will often be lacking. One way of remedying this defect is to condense the amines with the aldehydes.

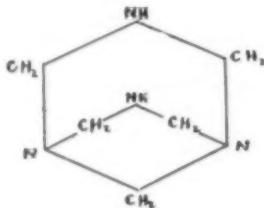
The type of this formation is the combination of formaldehyde with ammonia, which produces successively three accelerating vitalizers.

#### 1. Trimethylene triamine.

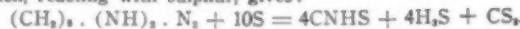


Trimethylene triamine, which reacting with sulphur, gives  $(\text{CH}_2)_3 \cdot (\text{NH})_3 + 6\text{S} = 3\text{CNHS} + 3\text{H}_2\text{S}$ , which is a perfect sulphydric accelerating vitalizer, since it leaves no residuary products.

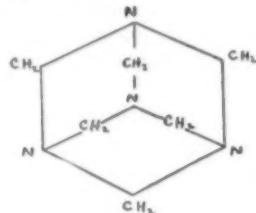
2. Pentamethylene tetramine,



which, reacting with sulphur, gives:



3. Hexamethylene tetramine,



which, reacting with sulphur, gives:



Hexamethylene tetramine gives, in vulcanization, absolutely remarkable results from the point of view of time as well as of increase of breaking strength.

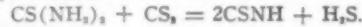
A mixture composed of plantation crêpe, 60 parts; oxide of zinc, 34 parts; sulphur, 5 parts, and hexamethylene teramine, 1 part, under three atmospheres of pressure, gives, in 50 minutes, a perfectly vulcanized caoutchouc, of which the physical constants are as follows:

Breaking strength per square millimeter..... 3.170 grams  
Elongation at break..... 7  
Permanent elongation..... 1.095

In the condensation of the amines and the imines with the aldehydes we condense an aldehyde of the fat series with an amine or imine of the aromatic series and vice versa.

The products of the addition of sulphide of carbon with certain bases and certain amines also give very good vitalizers. Among these we can mention the products of addition of the sulphide of carbon to dimethylamine with the  $\beta\beta$  dimethyl, and methyl trimethylene imine with the different cobaltamines. These last substances are vitalizers of the first rank.

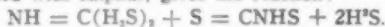
In this class of vitalizers we must place the sulphurated derivatives of urea, such as sulphourea, which, with sulphide of carbon, gives very good results:



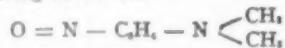
Dithiocarbonic acid,



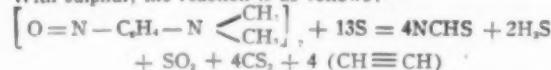
which, heated with sulphur, gives the reaction:



The products of dinitrification of the amines act as complete accelerating vitalizers, their oxygen together with the sulphur producing sulphurous acid. The type is the paranitroso dimethylaniline, an intermediary product well known in the manufacture of coloring substances.



With sulphur, the reaction is as follows:



Quinoline, oxyquinoline and their salts must be classed in the same group, as they act in the same way.

Most of the nitrated compounds obtained in the immense series of coloring matters, such as Bismarck brown or paranitroaniline, are capable of acting as accelerating vitalizers.

It can be seen, therefore, that the number of substances which can be used as catalysts in the vulcanization of caoutchouc is considerable, but a judicious choice must be made, taking into consideration the conditions of temperature which cannot be exceeded.

A very wide choice of catalysts is open to manufacturers, and among these different kinds they will be able to find the compounds they need, whatever may be the physical conditions of vulcanization, dry heat or open-steam heat to accelerate its speed, while considerably increasing the breaking strength of the caoutchouc.

#### NEW JERSEY CHEMICAL SOCIETY.

THE January meeting of the New Jersey Chemical Society was held January 13, in Newark, New Jersey. Rubber was the topic of the evening.

"Catalysts in the Manufacture of Rubber Goods (A Story of Accelerators)" was presented by George D. Kratz of Cuyahoga Falls, Ohio.

Mr. Kratz briefly reviewed the methods of obtaining plantation rubber from latex and the resulting loss in resins, sugars and proteins with impairment of the vulcanizing qualities of the rubber product.

"Some American Substitutes for Rubber," by Dr. Frederick Dannerth, of Newark, New Jersey, covered the story of rubber manufacture with special reference to national self-containedness of the continental United States as regards crude rubber.

The meeting closed with remarks by H. O. Chute, of New York City, on the patent situation with respect to organic vulcanization accelerators.

#### THE CARBON BLACK SITUATION.

During the last half dozen years carbon black has become very important to the rubber trade, especially in the manufacture of automobile tires. Its annual production in the United States, derived entirely from natural gas, is placed at about 36,000,000 pounds. Formerly the larger portion of carbon black was used in the manufacture of printing ink; now, however, the rubber industry uses the larger part.

The United States Fuel Administration has recently appealed to the patriotism of the manufacturers of carbon black in the important West Virginia areas to help in the conservation of natural gas, the supply of which is growing scarcer. This appeal has been met in a liberal spirit of cooperation and with pecuniary sacrifices on the part of the manufacturers.

In this connection it should be noted that the largest producer of carbon black has already moved one large plant from West Virginia to Louisiana; has closed down a second, and will relocate the remainder outside the state. The gas thus saved will be distributed to various communities for fuel purposes. Certain of the West Virginia plants, however, will be run at full capacity till November first of this year.

The removal of the carbon black industry to sections remote from the manufacturing centers where it is used will operate to raise its price through increased freight on both the packing and the material.

#### REMOVAL OF AUTOMOBILE PROHIBITION IN STRAITS SETTLEMENTS.

The proclamation of May 16, 1917, which prohibited the importation into Straits Settlements and the Federated Malay States of automobiles, parts and accessories thereof, has been revoked, according to a cablegram of December 9 from the American Consul General at Singapore.

## What the Rubber Chemists Are Doing.

### INVESTIGATIONS OF THE VULCANIZATION PROCESS.<sup>1</sup>

#### ACCELERATORS.

INSPECTION of the following tabulated results will show that some compounds, especially the basic, or such as are transformed at the vulcanizing temperature into bases, cause strong acceleration. Other compounds have no influence, while the acid compounds show distinctly a retarding influence.

#### INFLUENCE OF VARIOUS INORGANIC COMPOUNDS ON THE VELOCITY OF VULCANIZATION (VAN HEURN).

Extra addition of one per cent.	Vulcanization Coefficient.	
None	3.11	3.16
Magnesium oxide	6.90	6.80
Ammonium carbonate	5.85	5.20
Barium hydroxide	5.05	
Sodium sulphide	4.86	4.93
Litharge	4.65	4.35
Sodium bicarbonate	4.51	4.66
Ammonium phosphate	3.86	4.29
Magnesium carbonate	3.98	
Sodium bisulphite	3.39	3.91
Ammonium sulphate	3.34	
Ammonium oxalate	3.12	2.86
Ammonium chloride	2.77	3.08
Zinc oxide	2.75	2.70
Ammonium borate	2.57	2.65
Ammonium nitrate	2.28	2.65
Potassium bisulphite	1.93	2.46

Of much greater influence is the action of organic accelerators as can be seen in the following table, which relates to vulcanizations according to the "standard method" in the oil bath.

#### INFLUENCE OF ORGANIC COMPOUNDS ON THE VELOCITY OF VULCANIZATION (VAN HEURN).

Extra addition of $\frac{3}{4}$ of 1 per cent.	Vulcanization Coefficient.	
None	2.46	2.31
Accelerene	8.04	7.90
Vulcacute	7.80	7.69
Piperidine	7.00	6.95

Accelerene is the trade name of a product consisting of para-nitroso dimethylaniline, which is often sold containing a great many impurities. Vulcacute seems to be a condensation product from acetaldehyde and ammonia, according to researches made at the Institute.

It is remarkable that this acceleration is not identical for all species of rubber and it seems as if the combining with sulphur is less accelerated for highly viscous kinds than for those of low viscosity. One would be likely to conclude this from Van Rossem's observations in the following table:

#### VULCANIZATION COEFFICIENTS FOR VARIOUS RUBBERS ON ADDING THE SAME QUANTITY OF ACCELERENE.

Number of sample	54T	26T	98T	163T
Viscosity number	30	42	73	102
Vulcanization coefficients with standard method (cured $1\frac{1}{2}$ hours at $147^{\circ}$ C., without addition)	2.3	3.1	4.3	4.7
Vulcanization coefficients after $25$ minutes' cure at $147^{\circ}$ C., with accelerene.	$\frac{1}{2}$ of 1 %	1.9	1.5	2.1
	$\frac{1}{4}$ of 1 %	3.1	3.0	2.55
	$\frac{1}{8}$ of 1 %	3.6	3.6	2.9
	$\frac{1}{16}$ of 1 %	4.2	4.4	3.1

The above data suggest important aspects for technical application. Before general conclusions can be drawn, further data will be required.

Another point worth notice, confirmed by the Institute, is that Kerbosch-Schadt rubber, prepared by evaporating the latex, possesses a high velocity of vulcanization, especially important in connection with the low viscosity. It is undoubtedly that this high velocity must be ascribed to serum compounds. It is further evident that there is no reason to give preference to natural accelerators above artificial ones, when one desires to make "stiff" goods, and only for those will the addition be of value.

<sup>1</sup>Continued from THE INDIA RUBBER WORLD, January 1, 1919, page 196.

#### PREVIOUS HEATING OF RAW RUBBER AND THE VULCANIZATION COEFFICIENT.

Experiments by Van Heurn demonstrated that one can increase the velocity of vulcanization considerably and thus improve the mechanical properties, by heating *Hevea* crêpe for four hours in a current of carbon dioxide at 130 degrees C. If the heating is continued beyond four hours the mechanical properties again decline, approaching normal. How far the change observed on heating in carbon dioxide is due to the influence of that gas and whether the same result may be obtained on heating in another indifferent gas, will be determined by future experiments.

#### PLASTICIZING AND THE MECHANICAL PROPERTIES OF VULCANIZED RUBBER.

Continued plasticizing causes the diminishing of the breaking load and the elongation at break. When plasticizing takes place during periods within those of ordinary practice such influence is not noticeable. The Institute has unpublished tests showing that on energetically plasticizing, but not to such an extent that the velocity of vulcanization diminishes, the course of the curve is not altered, but its end point is shifted. Possibly this fact may be attributable to air, imprisoned during plasticizing, which does not wholly escape during vulcanization. The course of the curve is practically independent of the degree of plasticizing.

#### TIME OF CURE AND THE MECHANICAL PROPERTIES.

The point investigated was whether a rubber with a low viscosity can yield on prolonged vulcanization as good a product as one with a high viscosity. The answer is affirmative.

#### BREAKING LOAD AND ELONGATION AT BREAK WITH INCREASING TIME OF VULCANIZATION.

Tests were made with blanket crêpe, viscosity 46; *Hevea* crêpe, viscosity 63; and *Hevea* crêpe, viscosity 70. The curing periods extended from one hour to three, varying by intervals of one-quarter hour, except that the  $1\frac{1}{4}$ -hour interval was omitted. The results of the tests showed that a weaker product, by prolonged vulcanization, can yield as strong a product as a strong rubber, without the danger of overvulcanization. It is concluded that when the conditions of vulcanizing differ from the standard method only in time of cure, the vulcanization coefficient remains a measure of the mechanical properties.

#### INFLUENCE OF TEMPERATURE AND QUANTITY OF ADDED SULPHUR ON THE MECHANICAL PROPERTIES.

Completely normal stress-strain diagrams were obtained for rubbers vulcanized at 139.2 degrees C. (that is, nine degrees lower than the chosen "standard temperature"), by vulcanizing for two, three, four, and five hours, respectively. This is not the case when more or less sulphur than the standard quantity of  $7\frac{1}{2}$  parts is added to  $92\frac{1}{2}$  parts of rubber. For example, with  $12\frac{1}{2}$  parts of sulphur to  $87\frac{1}{2}$  parts of rubber a much greater stress is required for a certain elongation than is necessary for a "normally" vulcanized rubber. This condition is noticeable with ten of sulphur to 90 of rubber. With less than  $7\frac{1}{2}$  parts the reverse is observed. The influence of excess sulphur confirms the conclusion arrived at for catalysts, namely, that a greater rapidity of vulcanization causes, under similar circumstances, a stiffer rubber than would be expected from the vulcanization coefficient.

#### MISCELLANEOUS FACTORS AND THE MECHANICAL PROPERTIES OF VULCANIZED RUBBER.

No exceptions have been met with at the Institute in which the elongation curve did not practically confirm expectation of theory regarding the correlation of viscosity and vulcanization.

and of that existing between this coefficient and the situation of the curve of elongation.

The addition of chemically indifferent solid fillers has little or no influence on the velocity of vulcanization but does affect the mechanical properties. The elongation at break and breaking load decline and the rubber becomes stiffer as indicated by its elongation curve. The addition of soft fillers markedly reduces the breaking strength and elongation at break. This unfavorable effect was demonstrated by the presence of ten per cent of paraffine in a test compound.

#### THE ACTION OF ACCELERATORS ON THE MECHANICAL PROPERTIES OF VULCANIZED RUBBER.

Rubber vulcanized with powerful accelerators becomes "stiffer," and has less elongation at break than ought to be the case with the vulcanization attained. In other words it does not show a "normal" curve with relation to its vulcanization coefficient. In the case of vulcanization by the use of  $\frac{1}{2}$  of one per cent of "accelerene" showing vulcanization coefficient 4.4, the curve occupied about the position of the normal one for a vulcanization coefficient of 7.

The end point of the curve is situated much higher than would be the case with a "normal" curve similarly located. Also the points of break for normal curves with high vulcanization coefficients are situated very far apart, while for rubbers vulcanized under accelerating conditions they all lie about equally high. From this it follows that rubber vulcanized with an accelerator can be stretched much farther without breaking than that vulcanized under ordinary conditions. With the former, brittleness occurs only with a much higher vulcanization coefficient and after reaching a greater degree of stiffness than with the latter. Therefore, whenever accelerators can be used a saving of steam will result and a product be obtained which will withstand greater elongation.

It is remarkable that rubbers with low viscosity are more accelerated in their vulcanization by similar quantities of accelerator than those of a high viscosity. For this reason their mechanical properties deviate more from the normal than those of highly viscous rubbers; consequently the action of accelerators is of higher importance for rubbers of low viscosity.

Addition of artificial accelerators under controllable conditions is preferable to intentionally leaving in the rubber natural catalysts, the nature and quantity of which are unknown. According to the opinion of the Institute, no danger exists of the oxidization of normally treated plantation rubber, packed and stored judiciously, even when stored for long periods.

Van Rossem hints at the possibility of greatly reducing the variability of plantation rubbers by careful adjustment of the addition of artificial accelerators with respect to the degree of viscosity of the rubber. Care is cautioned here because the question of proportion of accelerator desirable demands close and accurate study.

Regarding the possibility of unfavorable influence of accelerators in producing "after-vulcanization," it is said that such influence will probably be least for accelerators decomposable at the temperature of vulcanization, such as "accelerene," for example. The Institute advances the opinion that after-treatment of the vulcanized product with retarding catalysts, such as sulphur dioxide, can become a means of counteracting the harmful influence of after-vulcanization.

#### VULCANIZATION COEFFICIENT AS A MEASURE FOR THE MECHANICAL PROPERTIES.

With the standard vulcanization of first latex rubbers, the vulcanization coefficient gave an excellent indication of the mechanical properties. With a definite vulcanization coefficient known, the average course and the end point of the elongation curve could be calculated by using the Schopper machine.

Comparison of the elongation diagrams of vulcanizations dif-

fering from the standard method showed that the vulcanization coefficient offers a general indication of the probable course of the elongation curve, but that this is not the case with rubbers containing more than the usual quantities of artificial catalysts. Other factors influence the situation of the end point of the curve.

#### PRE, UNDER, OVER AND AFTER-VULCANIZATION.

In order to determine when a rubber may be pronounced well-vulcanized it is necessary to investigate the resulting properties produced from the inception of the process till it has advanced too far.

When rubber is heated only a short time with sulphur an alteration takes place which may be considered as the beginning of vulcanization. The resulting product may still be completely dissolved in the usual solvents for rubber. In this case the rubber is termed pre-vulcanized. Van Heurn has shown that this prevulcanization is noticeable at ordinary temperature, for after three months the viscosity of a mixture of 92½ parts of crêpe and 7½ parts of sulphur appeared to be raised considerably more than could be explained from the recovery of the plasticized rubber. Prevulcanization was more marked for a mixture of sulphur, litharge, and magnesia. It is difficult to judge whether any sulphur is combined during this prevulcanizing; however, the impression is to that effect.

Prevulcanization merges into undervulcanization. The latter designation indicates that the product of vulcanization has become insoluble though still retaining plastic properties reminding one of raw rubber. It should be noticed that undervulcanization is often evident by porosity of the product, developed by steam bubbles in the rubber on blowing off the steam pressure.

Overvulcanization results in brittleness. Van Heurn points out that it is incorrect to think that where the breaking load attains a maximum, the best vulcanization exists. In practice overvulcanization will be assuredly prevented by not exceeding vulcanization coefficient of 3.5 at the utmost.

After-vulcanization takes place in vulcanized rubber stored at ordinary temperature. The increase of combined sulphur is trifling, but at temperatures higher than normal, or when exposed to light, it becomes considerable. A well-vulcanized rubber in which only sulphur is present should possess a vulcanization coefficient of 2 to 4. It is not yet settled how far this result may be altered by the use of fillers and accelerators.

#### ALTERATION OF PROPERTIES DURING VULCANIZATION.

There exists a gradual change in the mechanical properties when passing from prevulcanization to overvulcanization. A similar continuity of change is observable on the transformation of overvulcanized rubber into ebonite. The quantity of combined sulphur also increases continuously coincident with a regular decline of the adhesiveness and solubility. Doubtless this continuity of changes also includes the other properties and applies to both hot and cold vulcanization.

#### THE NATURE OF MOTTLING OF VULCANIZED PARA RUBBER.

A paper by H. Runpel in "Gummi-Zeitung," 1916, page 144, is abstracted as follows in the "Journal of the Society of Chemical Industry," October 15, 1918, page 595A:

The sample examined was free from substitute and yielded only about 3 per cent ash. The lightest patches contained twice as much free sulphur as the darkest. The formation of the patches is explained as follows: After vulcanization the sulphur which has not combined chemically with the rubber passes, on cooling, into the amorphous or the rhombohedral form, except at the surface, where the octahedral crystals quickly separate. Sulphur wanders from the interior of the sample to the surface, and the sample "sulphurs up." At the same time, however, there occurs conversion of the less stable into the more stable form within the sample, the rubber acting as a solvent, and the sulphur wanders from certain parts of the solution and accumulates round other centers.

## New Machines and Appliances.

### THE MORRIS AUTOMATIC HEEL-TRIMMING MACHINE.

**I**N the accompanying illustration may be seen a novel heel-trimming machine that is practically automatic in operation. A rubber heel that has just been trimmed is about to fall into the delivery trough, while an untrimmed heel is shown in the position of being fed to the trimmer. When the heel is advanced to a certain point by the operator the machine takes hold of it and automatically completes the trimming operation.

Special cutters are provided on this machine, the upper one having a tapered cutting edge, so that either tapered or straight-side heels may be trimmed in the same machine. Integral with the lower cutter is a small circular ridge, extending at right angles to the cutting edge, for the purpose of supporting the heel as the overflow is being removed. A special guard is fastened to the frame of the machine and extends outwardly under the upper cutter, effectively covering the cutting edge, protecting the heel and allowing only the overflow to be removed.

An adjustable guide that is attached to the table enables the operator to move the heels into the machine in rapid succession. An inclined trough conveys the trimmed heels by gravity to boxes provided for the purpose. (T. W. Morris, 3304 Warren avenue, Chicago, Ill.)

### SEWING-MACHINE FOR BALLOON FABRIC.

Sewing-machines are necessary in the production of both airplanes and balloons, but there is so much more sewing to be done in the manufacture of even the smallest type of balloon that a special sewing machine was perfected in order that balloon production in the United States might be facilitated during the war.

This machine is known as the Singer No. 113 w 110, front view of which is here shown. It makes two lines of lock-stitching simultaneously and the work is accomplished rapidly, each of the two needles being capable of a speed of up to 2,500 stitches per minute. When it is remembered that in the envelope of even some of the smaller balloons there are about 400 pieces of rubberized fabric to be sewed, the great advantage of a high-speed machine is apparent.

Before the seams are stitched the edges of the sections are cemented. The arm of this machine being 30 inches long, a large number of gores can be attached with cement and then sewed at one time. As the feed must be sufficiently powerful to handle long lengths of rubberized fabric, the machine is equipped with additional feeding mechanism including two feeding rolls which are located at the back of the twin needles. This auxiliary feed pulls the work while it is being stitched so that much of the burden of feeding heavy and bumpy fabrics is taken from the regular feed, the entire feeding mechanism working in unison.

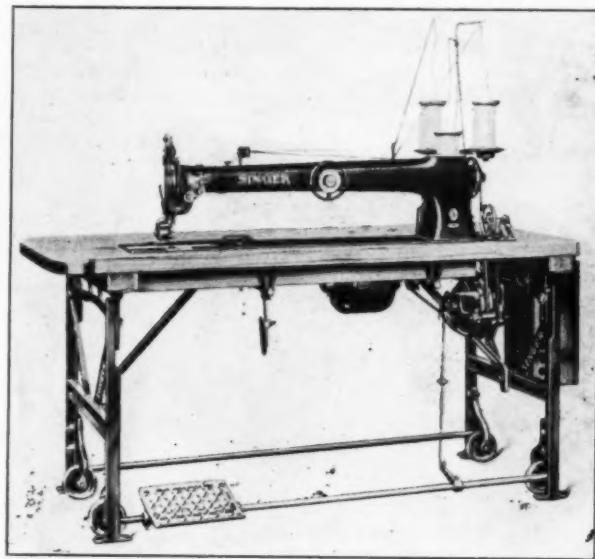
As already stated, this machine makes two lines of lock-stitching, there being one needle thread and one bobbin thread for each line of stitching, the lock of the threads being located within the thickness of the rubberized fabric. This true lock-stitch passes



THE MORRIS HEEL-TRIMMER.

the strictest government tests. When the covering strip of fabric is cemented over the stitched seams of the balloon, the upper and under threads of the lock-stitch lie so snugly under the strip that no air pockets are formed. When air pockets are formed a leakage of hydrogen gas from the balloon follows.

The illustration shows the machine equipped with individual electric motor which is the most satisfactory form of drive. The



MACHINE FOR STITCHING BALLOONS.

outfit, moreover, is portable, being mounted on casters to facilitate moving the equipment from place to place as desired. (The Singer Manufacturing Co., Elizabethport, New Jersey.)

### A NEW RETREADING EQUIPMENT.

Retreading continues to be a popular expedient for prolonging tire mileage and particularly so at the present time when

tire prices are high. That marked improvement is being made in the mechanical equipment for doing this work, is shown in the accompanying illustration of a new type of retreading vulcanizer. This is known as type E retreading equipment. This outfit will retread tires from  $2\frac{1}{2}$  to 5 inches and consists of two ribbed

tread cavities,  $2\frac{1}{2}$  to 4-inch and  $4\frac{1}{2}$  to 5-inch, and a plain tread reducing shell for the  $3\frac{1}{2}$  to 4-inch cavity which will cure  $2\frac{1}{2}$  to 3-inch tires. It is made in  $1/3$  circle, can be heated by gas or gasoline and includes steam gage, water gage, safety valve and steel bands. This is a self-contained outfit. No boiler is required. (The Akron Rubber Mold & Machine Co., Akron, Ohio.)

### TIRE-RETREADING VULCANIZER.

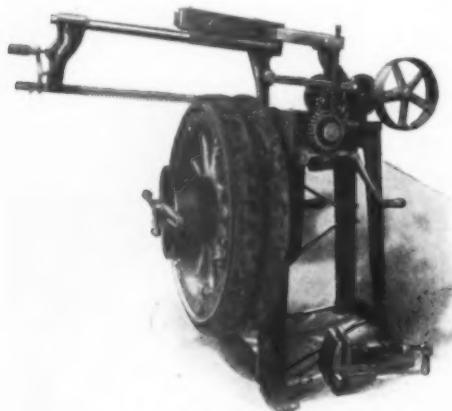
safety valve and steel bands. This is a self-contained outfit. No boiler is required. (The Akron Rubber Mold & Machine Co., Akron, Ohio.)

## POWER SAW FOR CUTTING SOLID TIRE BASES.

A novel application of the power hack-saw principle is shown by the accompanying illustration of a machine especially designed for cutting steel rims of solid tires. It is intended for use in service stations where worn-out tires are removed and new ones substituted on the wheel.

Solid truck tires are made on steel bases and forced on the wheel-rim by hydraulic pressure. In time, the wheel-rim and tire-base become firmly united and it is necessary to cut the steel base in order to remove the tire.

The wheel is clamped to a frame that is raised or lowered by worm-gearings operated by hand-power. The machine cuts on the draw stroke and the saw-frame is lifted on the return stroke by a compression oil lift-pump. A gage is provided to stop the



SOLID-TIRE-BASE CUTTING SAW.

cutting when the steel base has been severed. The saw-frame is adjustable for blades from 12 to 24 inches and will cut bases up to 16 inches wide. The machine may be driven by belt power or direct-connected motor. (W. Robertson Machine & Foundry Co., Buffalo, New York.)

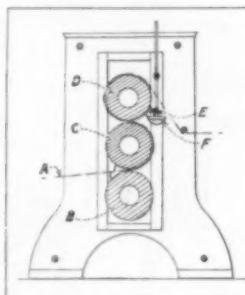
## MACHINERY PATENTS.

## APPLYING BALATA TO FABRIC WITHOUT SOLVENT.

FABRICS may be simultaneously coated with balata on both sides by this method, and without the use of solvents. The accompanying drawing is intended to illustrate only the coating device, which in this instance conveniently comprises the top roll of a three-roll calender especially adapted for this purpose.

The balata stock is warmed up in the usual manner and banked above and below the fabric *A* as it passes between rolls *B* and *C*, that are excessively heated by steam. The impregnated fabric passes upwardly between the middle and upper, or cooling, roll *D*, and around the latter to the wind-up roller.

The cooling roll *D* is chambered for internal water cooling, while water jets sprayed from pipe *E*, arranged parallel with the roll, effectively cool the exterior surface of the cylinder. Trough *F* serves to carry off the water, and a rubber scraper attached to the inner edge of the trough removes the water from the roll and deflects it into the trough. (Lucien Abel François, Paris, France. United States patent No. 1,285,105.)



BALATA CALENDER.

## SOAPSTONE-BRUSH.

By the use of this hand device, powdered soapstone may be applied to the surface of rubber stock without creating clouds of dust in the operation.

It comprises a container body, the bottom of which supports the bristles of the brush, and the top of which is a flexible diaphragm. The soapstone is delivered to the brush portion of the device by pneumatic pressure which is set up within the device by the hand of the operator grasping the brush-handle.

Connected to the diaphragm are means for breaking up any lumps of soapstone caked within the container body, as the diaphragm top is reciprocated by the user. The soapstone is deposited in the center of the brush and, by the movements of the operator's arm, is distributed over the surface to be dusted. (Mark A. Repligie, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,281,660.)

## OTHER MACHINERY PATENTS.

## THE UNITED STATES.

- N**O. 1,283,462. Cutter attachment for calenders. C. W. Board, Akron, O. 1,283,630. Vulcanizing press for curing concavo-convex blow-out patches. T. W. Bean and T. J. Hennessy, assignors to Firestone Tire & Rubber Co.—all of Akron, O.
- 1,283,701. Mechanism for preparing tubes for splicing. C. H. Durkee, Springfield, Mass., assignor to The Goodyear Tire & Rubber Co., Akron, O.
- 1,283,778. Tire mold. E. G. Hulse, Akron, O., assignor to Kelly-Springfield Tire Co., Jersey City, N. J.
- 1,283,856. Machine for testing fabric. E. E. A. G. Meyer, assignor to Morgan & Wright—both of Detroit, Mich.
- 1,283,947. Apparatus for treating materials. W. J. Steine, Elmhurst Heights, N. Y., assignor to Rubber Regenerating Co., Naugatuck, Conn.
- 1,283,948. Core-cleaning machine. W. C. Stevens, assignor to Firestone Tire & Rubber Co.—both of Akron, O.
- 1,283,998. Core for tires and tire-carcasses. C. W. Wattleworth, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
- 1,284,112. Repair vulcanizer. F. W. Kremer, Carlstadt, N. J.
- 1,284,646. Machine for sewing rubber. J. R. Gammeter, Akron, O., assignor to The B. F. Goodrich Co., New York City.
- 1,285,088. Repair vulcanizer. A. Fay, Louisville, Ky.
- 1,285,321. Machine for manufacturing inner tubes. E. Nall, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
- 1,285,476. Calender-roll grinder. W. A. Underwood, Worcester, and J. Zimmerman, Auburn—both in Mass.
- 1,285,928. Chuck. J. L. Butler, Akron, O., assignor to The B. F. Goodrich Co., New York City.
- 1,285,976. Machine for making tires. J. R. Gammeter, Akron, O., assignor to The B. F. Goodrich Co., New York City. (Original application divided.)
- 1,286,263. Fabric-cutting machine. J. Ellis, assignor to G. & J. Tire Co.—both of Indianapolis, Ind.
- 1,286,466. Tire-wrapping machine. C. B. Whittelsey, assignor to The Hartford Rubber Works Co.—both of Hartford, Conn.

## THE DOMINION OF CANADA.

- 187,040. Calender for tire-tread stock. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of W. Kearns, Detroit, Mich., U. S. A.
- 187,237. Tire-bead trimming machine. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of R. L. Taft, Hartford, Conn., U. S. A.

## PROCESS PATENTS.

## THE UNITED STATES.

- N**O. 1,285,992. Treating old tires to produce new material. F. L. Harley, Folsom, Pa.

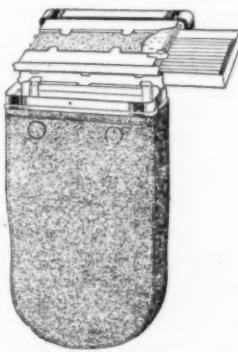
## THE FRENCH REPUBLIC.

- 487,869. Process for producing artificial leather. E. Kalberer.
- 488,036. Improvements in the vulcanization of rubber and analogous substances. The Dunlop Rubber Co.
- 488,372. Improvements in the process of manufacturing colored rubber and the products made of this rubber. India Rubber Company.
- 488,454. Process of making pneumatic tires. J. Ortiz Escofet.

## New Goods and Specialties.

### A COMBINATION TOBACCO-CONTAINER.

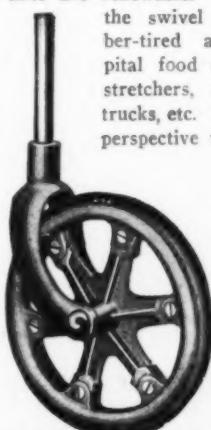
THE demand for a container for tobacco that will keep it away from moisture, and at the same time, one that will keep conveniently near the tobacco the papers, matches, etc., without which it is useless to the cigarette smoker, has resulted in "The Makings," of which an illustration is shown herewith. It consists of a pouch of waterproof rubberized khaki fabric attached to a nickel-plated top. This top, by an ingenious hinged arrangement, can be drawn away from the pouch sufficiently to get at the tobacco within. The top itself has a match-striker on one side and contains a tiny drawer or box in which matches and cigarette papers may be kept. When the container is to be put into the pocket, the match-box slides back into place and the top adjusts itself over the container-frame. The whole is neat, compact, and convenient, and is very good-looking. It is made from excellent materials and the idea is well executed. (The Scoban Co., Inc., New York City.)



"THE MAKINGS."



"DUCKRUB" TIRE. The "Duckrub" tire illustrates how the canvas strips are inserted so that most of the wear is thrown on the edges. The other sectional view shows the round tread clincher type of rubber-tired wheel used on hospital beds, food cars, tray and dressing carriages, stretchers, etc. The tires are renewable. The caster below is of the swivel type. It is also rubber-tired and is used on hospital food cars, dressing carriages, stretchers, and different kinds of trucks, etc. The wheel illustrated in both sectional and perspective views is known as the solid-web rubber-



RUBBER-TIRED CASTER.



SOLID-WEBS RUBBER-TIRED WHEEL.

tired hospital wheel. It is used on hospital beds, operating tables, and other kinds of rolling equipment. These casters and wheels are made in the unfinished metal, black japan, or aluminum bronze finish to match the furniture. (Jarvis & Jarvis, Palmer, Mass.)

### "RUSCO" RUBBER CORD TO RELIEVE AIRPLANE SHOCKS.

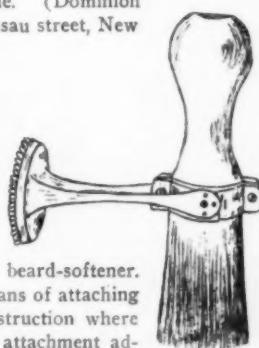
The demands of the airplane for dependable shock-absorbers have led to many expedients, and devices employing rubber are numerous. One of the newest is a cord made of strands of Pará rubber thread covered with cotton yarn. It is used to take up the shock of hard landings on airplanes. (The Russell Manufacturing Co., 349 Broadway, New York City.)

### "DARCOID" SHEET PACKING.

A new kind of sheet packing combines the advantages of the old-fashioned rubber kind and the long-wearing asbestos type. It resists heat, acids, brine, ammonia, gas, and alkali, and at the same time is strong and durable. (Dominion Asbestos and Rubber Corp., 154 Nassau street, New York City.)

### SHAVING-BRUSH ATTACHMENT.

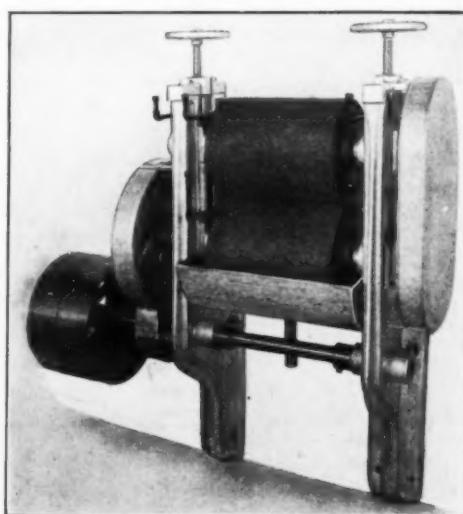
The latest device to assist the man who shaves himself is an attachment for the shaving-brush which can be used with facility and satisfaction. It consists of a rubber disk with small projections that perform the function of a beard-softener. Spring arms and clamps provide means of attaching it to any brush, and a hinged construction where the arms join the clamp make the attachment adjustable to any convenient position. This device was recently patented in the United States of America. (James Smith, Jr., 66 Rose street, Phillipsburg, New Jersey.)



BEARD SOFTENER.

### A WRINGER FOR MANY PURPOSES.

A wringer that combines the latest modern requirements of such a device as adapted for use in woolen and worsted mills, bleacheries, tanneries, and other similar industries, is pictured



THE "EXCELSIOR" WRINGER.

here. It is made with rolls in one diameter only, 10½ inches, and is driven by a tight-and-loose pulley. It can be attached to dye-tubs when desired. The rolls are made of the best-quality rubber. (American Wringer Co., Woonsocket, R. I.)

## THE EDITOR'S BOOK TABLE.

THE PREPARATION AND VULCANIZATION OF PLANTATION Para Rubber. Bulletin No. 27, Department of Agriculture, Federated Malay States. By B. J. Eaton, J. Grantham and F. W. Day. Kuala Lumpur, Federated Malay States, 1918. (Paper covers, 398 pages, illustrated. Price \$1 Straits Settlements. Equivalent to 56.7 cents United States currency.)

**T**HIS volume embodies the results of the exhaustive series of scientific investigations conducted by the authors under Mr. L. Lewton-Brain, director of the department of Agriculture of the Federated Malay States. The researches are reported in a series of twenty-seven sections or chapters.

The results described under the section dealing with the scientific aspects of the problem have been published previously in the "Journal of the Society of Chemical Industry" and the "Agricultural Bulletin," Federated Malay States, but are rearranged in the present bulletin and a large number of experiments have been added. So far as they have been previously published these researches have been presented to the readers of THE INDIA RUBBER WORLD in the form of lengthy abstracts. It is of interest to rubber chemists to learn that the full report of the investigations is now available. The authors have appended to their report a reference list of 57 items covering the literature of crude rubber investigations from the plantation factory and chemical points of view.

INDIA RUBBER. BY H. P. STEVENS, M. A., Ph. D., F. I. C. Society of Chemical Industry, Central House, 47 Finsbury Square, London, E. C. 2.

This is a reprint from the "Reports of the Progress of Applied Chemistry," Volume II, 1917, of the Chapter entitled "India Rubber," etc., being an outline review of published researches dealing mostly with the preparation of plantation rubber, under the following topics: "Statistics of the world's output of crude rubber for the past four years," "Preparation of Plantation Rubber," "Non-caoutchouc Constituents of Rubber Latex," "Viscosity of Rubber Solutions," "Theory of Vulcanization and the State of Cure," "Accelerators," "Vulcanization." Copious references are given to the original researches.

TIRE REPAIRING AND VULCANIZING. BY HENRY H. TUFFORD. William Hood Dunwoody Industrial Institute, Minneapolis, Minnesota. (Cloth, octavo, 98 pages, illustrated.)

When the training of United States Army men in tire-repair work was started by the Minneapolis Tire Dealers' Association and Dunwoody Institute, the need of a special handbook for the purpose was felt and the present volume was prepared to meet that need. It covers the various problems which come before the tire-repair man and is, therefore, a comprehensive, yet concise, treatise giving the best practice on the different repair jobs, describing the necessary tools and equipment, also devoting considerable space to accounting, costs and business methods. The chapters on retreads and cutting and building cord tires, particularly, are of very timely interest.

## NEW TRADE PUBLICATIONS.

**T**HE BELMONT PACKING & RUBBER CO., PHILADELPHIA, Pennsylvania, is sending out "General Catalog No. 5." This was formerly the Clement Restein Co., but the corporation has adopted "Belmont" as both brand and company name. The catalog gives an extensive list of rubber, asbestos, metal, flax and hemp packings, fully described and excellently illustrated both in entirety and in section. Sheet and wick packings and steam hose are also cataloged.

\* \* \*

AMONG HOUSE-ORGANS OR FACTORY PUBLICATIONS "THE RUBBER Leaf" stands out prominently for typographical appearance and variety of contents. It is "published monthly by McGraw men for McGraw men," otherwise, the employes of the McGraw Tire & Rubber Co., East Palestine, Ohio. Well-edited, excellently illustrated, it certainly is a model publication of its kind and one

which commends perusal by all McGraw employes, men and women as well.

\* \* \*

BULLETIN NO. 333 OF THE LINK-BELT CO., CHICAGO, ILLINOIS, is devoted to equipment for the handling and preparation of coal at the mine. Like all the publications of this company this 88-page pamphlet is crowded with excellent half-tones, well-drawn plans and diagrams, and succinct reading matter pertinent to the main subject. It must be of large value to coal miners, and is certainly of more than usual interest to the general reader.

\* \* \*

SYMPTOMS OF POISONING BY AND ANTIDOTES FOR POISONOUS organic accelerators used in rubber work have been reprinted by permission of the American Chemical Society as a chart for use by factory superintendents. Copies can be obtained by addressing Dr. L. E. Weber, 729 Boylston street, Boston, Massachusetts. The data given will be found in THE INDIA RUBBER WORLD, issue of November 1, 1918.

## HOLIDAY GREETINGS.

**T**HE rubber and allied trades, with their usual generosity and cordiality, have sent THE INDIA RUBBER WORLD renewed expressions of good will and appreciation during the recent holidays. In return, this publication takes the opportunity to extend its thanks and to assure these friends in the trade that it cordially reciprocates their good wishes for progress and success in the new year which appears to offer such splendid opportunities in every line of business.

## CALENDARS.

Elmer E. Bast, manager of Acme Belting Co., belting, packing, tires and tubes, mechanicals, and carriage cloth; also of United & Globe Rubber Manufacturing Cos., mechanical rubber goods, Chicago, Illinois, sends out an art calendar bearing a reproduction in color of C. D. Williams' painting, "The Angel of the Battle-fields," representing the composite spirit of woman typified by a feminine figure in white, surrounded by soldiers of the Allied nations paying her tribute. The color scheme is blue and white.

General Electric Co., manufacturer of all kinds of electrical machinery and apparatus, Schenectady, New York, is represented by a large hanger calendar so constructed that one of its three sets of leaves may be thrown away every four months. Each page bears the current, the preceding, and the succeeding month. Above the calendar figures on each page is a representation of some particular machine or apparatus manufactured by the concern. The calendar combines yellow, red, and white as its color scheme.

The Wellman-Seaver-Morgan Co., engineer and manufacturer of rubber machinery, Akron, Ohio, distributes a hanger calendar so arranged that it is reversible after six months. Above the calendar on each page is an illustration of some one of its various specialties. The calendar is printed in pale yellow and black on white.

F. E. Myers & Bro., manufacturers of all kinds of pumps for both hand and power operation, pump accessories, etc., Ashland, Ohio, duplicates their usual calendar featuring the styles of pumps they manufacture, but adds at the top very good reproductions of photographs of the proprietors, F. E. and P. A. Myers, who are the executive head, and the manager and producer of the concern, respectively.

The Pierce Co., manufacturer of "Vorite," a rubber substitute, East Rochester, New York, issues a large calendar with an especially clear date pad with black and white figures. Above is a sepia reproduction of the company's factory.

New Jersey Rubber Co., manufacturer of all kinds of reclaimed rubber, Lambertville, New Jersey, provides a pad for the "Handy" calendar stand.

H. T. West Co., Inc., dealing in oils, gums, and waxes, Bos-

ton, Massachusetts, sends out a panel calendar in two tones of green, decorated with a reproduction of the poem, "The Trees," by Christopher Morley in "Collier's Weekly," and illustrations featuring the poplar, the oak, and the pine, mentioned in the verses.

Edison Lamp Works of General Electric Co., manufacturer of "Mazda" electric lamps, etc., issues a long panel calendar bearing a reproduction of one of Maxfield Parrish's paintings for the company—"The Spirit of Night." The colors are blue, purple, yellow and orange, while the calendar is blue on gray.

The Pioneer Asphalt Co., Lawrenceville, Illinois, manufacturer of "M. R." hydrocarbon, contributes a calendar and memorandum pads for a desk calendar frame, accompanied by a card of greeting.

#### SOUVENIRS.

Morse Chain Co., Ithaca, New York, manufacturer of silent chains, sends out a leather-bound diary, featuring its products.

H. Muehlstein & Co., dealers in scrap rubber, New York City, is represented by a silk-lined leather bill-fold with the recipient's name engraved in gold on the outside and their own on the inside. Space is provided for an identification card under a celluloid shield, as well as the usual pocket for folded bills.

John Royle & Sons, manufacturers of rubber-working machinery, Paterson, New Jersey, distributes a gilt-stamped leather-bound diary, describing their products and provided with geographical maps.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, through its New York office, sends out a leather-bound diary featuring its products and containing maps.

#### JUDICIAL DECISIONS.

##### A MERICAN CHICLE Co. v. UNITED STATES.—United States Court of Customs Appeals, November 26, 1918.

The merchandise in this case consists of chicle, which was assessed for duty under the provisions of paragraph 36 of the Tariff Act of 1913, which provides for chicle "refined or advanced in value by drying, straining, or any other process or treatment whatever beyond that essential to the proper packing," as the chicle in question had been shipped from Mexico to Canada, and there ground and dried before being imported to the United States. The protestants claim that it should have been assessed at the smaller duty of 15 cents a pound as "chicle, crude." The Board of General Appraisers sustained the assessment as made, and the importers appealed.

The United States Court of Customs Appeals affirmed the decision of the Board of General Appraisers. (Treasury Decisions, Volume 35, No. 25, December 19, 1918.)

HARDMAN TIRE & RUBBER Co. v. STANDARD VULCANITE PEN Co.—Supreme Court, Appellate Division, First Department.

Appeal dismissed with \$10 costs. (New York Supplement, Volume 172, page 895.)

LIFE PRESERVER SUIT COMPANY v. NATIONAL LIFE PRESERVER COMPANY.—Circuit Court of Appeals, Second Circuit, May 10th, 1918.

The National Life Preserver Company owned the Youngren patent on a life preserver suit which was intended to give both buoyancy and warmth to the wearer.

The Life Preserver Suit Company was organized by Keviczky who took over the exclusive sales of the National. Part of the contract was that six months after the contract date the Life Preserver people had the option of taking an exclusive license to manufacture the suits, for which they were to pay a royalty and furnish a suitable bond to guarantee payment thereof. At the expiration of the six months, notice was given that they desired to take the manufacturing license. Within the 10-day period, however, they requested an extension of thirty days because of difficulty in getting the necessary bond.

The directors and president of the National company refused to give the desired extension and no bond was ever executed.

The National people were about to make other arrangements inconsistent with that contract and the Life Preserver people brought action in the District Court to prevent them. That case was decided in the favor of the National people and was appealed. The decision was reversed and the case remanded. (Federal Reporter, Volume 252, page 139.)

#### CUSTOMS APPRAISER'S DECISIONS.

RAINCOATS—CHIEF VALUE.—Protest of F. B. Vandegrift & Co., New York City. The only question to be determined was whether the raincoats are in chief value of wool or in chief value of cotton. The goods were classified under paragraph 291 Act of 1913, as articles of wearing apparel in chief value of wool, at 35 per cent ad valorem, and are claimed to be dutiable under paragraph 256 as articles of wearing apparel in chief value of cotton, as 30 per cent ad valorem.

The controversy arises regarding the proper method to be used to determine the component material of chief value. On the evidence of the analyst, all the items were held dutiable at 30 per cent ad valorem, under paragraph 256, Act of 1913. Judgment was in favor of the protestants, sustaining the protests accordingly, and in favor of the Government overruling the protests as to the other merchandise and claims. (Treasury Decisions, Volume 35, No. 25, December 19, 1918.)

WEBBINGS.—Merchandise classified as webbings, composed in chief value of artificial silk and rubber, at 60 per cent ad valorem under paragraph 319, Tariff Act of 1913, is claimed dutiable as cotton fabrics with fast edges under paragraph 262, against which assessment Edwin Horrax (New York), protested. It was found that these webbings are made of cotton, artificial silk, and rubber, the cotton being of greater value than the separate or combined values of the artificial silk and rubber. They were held, dutiable at 25 per cent under paragraph 262. (Treasury Decisions, Volume 36, No. 1, January 2, 1919.)

GUTTA SIAK.—A protest of the Rubber Association of America is sustained in a decision just rendered by the Board of United States General Appraisers, permitting the free entry of certain gutta siak. Duty was assessed at the rate of 15 per cent ad valorem under paragraph 385 of the Tariff Act of 1913. Judge Hay sustains a protest for free entry under paragraph 502.

#### ADJUDICATED PATENTS. THE UNITED STATES.

I. T. S. RUBBER COMPANY v. PANTHER RUBBER MANUFACTURING COMPANY.—United States District Court, Massachusetts.

The Tufford patent, No. 1,177,833, for a mold for making rubber heels, claim 11 of which specified a mold chamber having one wall convex and the other concave, held invalid, and further held not infringed, if deemed limited to the particular structure shown and described. (Federal Reporter, Volume 253, page 63.)

#### NEW YORK AUTO SHOWS.

The passenger car exhibition will take place February 1-8, and the commercial car exhibition February 10-15, 1919. Both shows are under the auspices of the National Automobile Dealers' Association, and members of the Motor and Accessory Manufacturers' Association have decided to exhibit this season. So large are both sections of the show to be that no single building in New York is adequate to hold either. Madison Square Garden and the Sixty-ninth Regiment Armory together will house the passenger-car section during the first week, and the second week the commercial vehicle section, including motor trucks, delivery wagons, tractors, etc., will occupy both of the show buildings.

A big meeting of the National Automobile Dealers' Association, at which prominent men will speak, is scheduled for February 5, in the form of a noon-day luncheon.

## The Obituary Record.

### PIONEER IN THE PNEUMATIC TIRE INDUSTRY.

**H**ARVEY DU CROS, through whose enterprise and business acumen Dunlop's invention of the pneumatic tire was developed, died at his residence, Dalkey, County Dublin, Ireland, on the twenty-first day of December, 1918, at the age of 72.



HARVEY DU CROS, J.P., M.P.

scope for the pneumatic tire, and under the management of Mr. du Cros the name of the Dunlop tires became familiar on six continents.

Mr. du Cros was president of the Dunlop Pneumatic Tyre Co., Limited, an office which he held even after a shock rendered him physically disabled, though mentally as strong as ever, and since his retirement, a few years ago, he has always been available in an advisory capacity.

Mr. du Cros was born in Dublin, Ireland, in 1846, being descended from an old Huguenot family which settled in that country in 1702. He was a keen sportsman, and in his younger days excelled in boxing, rowing, gymnastics and cycling. He was a member of Parliament from 1906 to 1908.

Of his six sons, Sir Arthur du Cros has been for several years managing director of the Dunlop Rubber Co., Limited, Birmingham, England, and another son, Harvey du Cros, Junior, is joint managing director of The Austin Motor Co., Limited, Northfield, Birmingham, England.

A history of Mr. Harvey du Cros' connection with the Dunlop Pneumatic Tyre Co., Limited, was given at some length in *THE INDIA RUBBER WORLD*, December 1, 1909.

### CHEMICAL EDITOR AND WRITER.

Raxley F. Weber, of the General Laboratories of the United States Rubber Co., New York City, died on November 9, 1918, after a lingering illness. Mr. Weber graduated from Cornell University in 1903, after which he taught chemistry for some years in the St. Louis high schools. His connection with the rubber industry commenced as research chemist with the Rubber Regenerating Co., Naugatuck, Connecticut, at the beginning of the year 1912.

His research work was thorough and resulted in some distinct advances in the art of reclaiming.

Failure in health led to his taking a six months' leave of absence in 1914, after which he joined the staff of the general laboratories of the United States Rubber Co., New York City, where his work was chiefly bibliographical. He was abstractor for the section on pigments, resins, varnishes and india rubber for the abstract journal of the American Chemical Society from January, 1913, until a separate section was formed for rubber and allied substances, of which he took charge as assistant editor in December, 1916.

At the United States Rubber Co.'s general laboratories he started the technical abstract bulletin that is circulated within the United States Rubber System and edited it with distinction, carrying on the work with a courage during his fight for health in the last part of his life that was an inspiration to his associates. He was peculiarly fitted for this sort of work and enjoyed its successful development under his hands.

Warm-hearted, whole-souled, and unselfish, he endeared himself to all of his associates and will be sorely missed by all who knew him.



RAXLEY F. WEBER.

### THE PAINT INDUSTRY LOSES A LEADER.

Raymond Watson Evans, vice-president and general manager of The Eagle-Picher Lead Co., Chicago, Illinois, died suddenly in New York City on Thursday, the sixteenth day of January, 1919, following an attack of acute indigestion.

Mr. Evans was born at Covington, Kentucky, on April 8, 1871. After graduating from high school he started his business career in the dry goods business in Missouri. While in Colorado for his health, his attention was directed to the opportunities offered by the lead business and he accepted a position as salesman in the Far West territory for the Picher Lead Co. in 1894. One year later he became secretary and treasurer of the company. When the Eagle White Lead Co. was absorbed by the Picher company in 1916, Mr. Evans became vice-president and manager of sales.

Mr. Evans loved his business and his home, was a tireless worker and a modest, kind, universally liked man. To his ability the success of the company is largely due.

Mr. Evans leaves his widow, Alberta Wetzel Evans, a daughter, Eugenia, his mother, three sisters, and his brother, S. Marshall Evans, the latter being the second vice-president of the Eagle-Picher Lead Co.



RAYMOND W. EVANS.

## News of the American Rubber Industry.

### RUBBER INDUSTRY HAS FAVORABLE OUTLOOK.

COL. SAMUEL P. COLT, in a timely interview in the "New York Journal of Commerce," makes the following points:

The past year has been prosperous, the business of the United States Rubber Co. exceeding \$200,000,000; profits, without considering the Federal income tax, satisfactory; inventories, due to the sudden ending of the war, very large; goods in stock under the inflated prices for materials constitute a danger; outlook for 1919 excellent; wages to be maintained as far as possible until cost of living diminishes; no increase in cost of crude rubber anticipated; freights believed to continue high; shipping to return to normal before long; great increase in tire business looked for; tire prices to be reduced only when cost of cotton and other commodities is materially reduced.

### NEW JERSEY ZINC CO. HAS SEVEN-STORY BUILDING.

The New Jersey Zinc Co. has moved into its new seven-story building at 160 Front street, New York City. The company manufactures lithopone and well-known brands of American and French process zinc oxides used by the rubber industry.



NEW JERSEY ZINC CO.'S NEW HOME.

Elevators are of zinc construction, while their doors and bell plates are zinc-coated, giving a rich satin finish. The grilles for the registers were first stamped and then zinc-plated. The lighting and hardware fixtures are likewise zinc-plated. Paint, enamel and tints include zinc oxide and lithopone, the latter being contained in even the window shades.

### THE S. A. E. WINTER MEETING.

The winter meeting of the Society of Automotive Engineers to be held at 29 West 39th street, New York City, February 4-6, 1919, will be devoted to the reconstruction problems facing the automotive industry. The annual banquet, to be held February 6, at the Hotel Astor, will take the form of a Victory dinner. About 2,000 members and guests are expected to attend. Prominent men have been invited to discuss the domestic and foreign future of the industry. The speakers at the professional sessions will be men in close touch with the automotive war program, who will now be permitted to give freely of the immense store of information collected by the Government. The report of the Standards Committee of the society will include important proposed standards.

### DIVIDENDS.

The Corn Products Refining Co., New York City, has declared its quarterly dividend of 1 1/4 per cent. on preferred stock, payable January 15 on stock of record January 6, 1919.

The Eagle-Picher Lead Co., Chicago, Illinois, declared its regular quarterly dividend of 1 1/2 per cent on its preferred stock, payable January 15 on stock of record January 6, 1919.

The Empire Rubber & Tire Co., Trenton, New Jersey, has declared from its surplus earnings a quarterly dividend of 1 1/4 per cent on its preferred stock, payable January 10 on stock of record January 1, 1919.

The Goodyear Tire & Rubber Co., Akron, Ohio, declared its regular quarterly dividend of 2 per cent on its second preferred stock, payable February 1 to stock of record January 15, 1919.

The Hood Rubber Co., Watertown, Massachusetts, declared its regular quarterly dividend of 1 1/4 per cent on its preferred stock, payable February 1 to stock of record January 20, 1919.

The Lynn Rubber Manufacturing Co., Lynn, Massachusetts, paid a 7 per cent annual dividend on January 2, 1919.

The Manufactured Rubber Co., Philadelphia, Pennsylvania, declared a dividend of 3 per cent on its preferred stock, payable January 27, 1919. This concern paid 6 per cent annual dividends from 1908 to 1912, but discontinued them before the end of 1913.

The Na-Peer Tire Co., Akron, Ohio, declared a dividend of 1 1/2 per cent on its common stock and a semi-annual dividend of 3 1/2 per cent on its preferred stock, both of record December 31, 1918.

The New Jersey Zinc Co., New York City, has declared a quarterly dividend of 4 per cent, payable February 10 on stock of record January 31, 1919.

The Sterling Tire Corp., Rutherford, New Jersey, declared its regular quarterly dividends of 4 per cent per annum on its common stock and 7 per cent per annum on its preferred stock for the period of three months ended December 31, 1918, payable January 15, 1919.

The United States Rubber Co., New York City, has declared from its net profits a quarterly dividend of 2 per cent on its first preferred stock, payable January 28 on stock of record January 15, 1919.

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania, has declared its regular quarterly dividend of 1 1/4 per cent on preferred and common stock, payable January 15 and 31, 1919, respectively, on stock of record December 31, 1918.

### AMERICAN WEBBING MANUFACTURING EXPORT CORP.

A group of the largest manufacturers of webbing of all kinds in the United States, having an aggregate invested capital of nearly \$9,000,000, has organized the American Webbing Manufacturing Export Corp. to promote and handle foreign business. Some of the larger companies concerned are: Everlastik, Inc.; American Mills Co.; Ansonia O. & C. Co.; Conant, Houghton & Co.; George S. Colton Elastic Web Co., and the Sanford Narrow Fabric Co.

W. B. Spencer, general manager of Everlastik, Inc., is president of the new organization. Mr. Chambers, of the American Mills Co., is vice-president; F. L. Brigham, Conant, Houghton & Co., treasurer; C. R. Richmond, George S. Colton Elastic Web Co., secretary; Mr. Judd, foreign department of the Guarantee Trust Co. of New York, general manager; L. R. Brown, Everlastik, Inc., merchandise manager. The advisory committee consists of Charles Stretch, F. L. Brigham, A. F. Terrill and Mr. Sutcliff.

## JOHN W. THOMAS.

JOHN W. THOMAS, chairman of the solid tire division of the War Service Committee of the Rubber Industry of the U. S. A., is a native son of the Buckeye State, having been born in Tallmadge, Ohio, in 1880. He spent his boyhood days on a farm, entering Buchtel Academy at the age of 17, and completing his education at Buchtel College, from which he graduated in 1904 a degree of Ph. B. Shortly after graduation he entered the laboratory of The B. F. Goodrich Co., Akron, Ohio, where he spent three years in research and experimental work. In January, 1908, he joined the Akron, Ohio, organization of the Firestone Tire & Rubber Co. and installed its laboratory, where he served as chemist for two years, going thence to the manufacturing department, serving an apprenticeship in one tire manufacturing unit after another, and

J. W. THOMAS.

becoming manager of one of the departments. In 1911 he was appointed superintendent of the factory, a position he still holds, and in 1916 he was elected a member of the board of directors of this company. Mr. Thomas makes his home in Akron, is married and has four children, two boys and twin girls. He is a member of the Congregational Church, of the Lone Star Fraternity, the Portage Country Club, Akron City Club, Rotary Club, Ohio Society of New York, Society of Automotive Engineers, Knights of Pythias, and the Akron Chamber of Commerce, of which last organization he is a director.

## PERSONAL MENTION.

Prominent among the younger men identified with the rubber industry, and one who has won recognition by his versatile ability and invariable courteousness, is W. H. Dickerson. He was assistant to the secretary of The Rubber Association when, upon recommendation of the Committee on Rubber and Kindred Products, he went to the War Trade Board and the Bureau of Imports at Washington as trade expert in charge of details relating to the inspection and allocation of rubber and kindred products.

Having acquired in the service of the Government a successful record and a large acquaintance among leading rubber men, Mr. Dickerson will continue in the rubber business as a member of the office staff of Meyer & Brown, dealers in crude rubber, 347 Madison avenue, New York City.

Charles R. Sargent has been appointed general manager of Stresen-Reuter & Hancock, Inc., Chicago, Illinois, manufacturer, importer and exporter of colors, minerals, chemicals and oils. Mr. Sargent will take charge of the Chicago office, but will spend part of his time in Cleveland, where he has been branch manager.

Frederick W. Dunbar resigned on December 31, 1918, as American agent, attorney-in-fact, and manager of the New York City office of Aldens' Successors, Limited, London, England. He is succeeded by Thomas A. Maguire and Alvah H. Brown as joint agents and attorneys-in-fact.

R. A. Hoover, special representative of The Pioneer Asphalt Co., Lawrenceville, Illinois, was in New York City last month.

L. P. MacNamara, of MacNamara & Wadbrook, Inc., New York City, has recently returned from a three weeks' trip to Hot Springs, Arizona, where he has extensive ranching interests.

E. E. Wadbrook, of the above company, has just returned from



Piedmont, North Carolina, where he participated in the golf tournament.

M. L. Heminway, whose efficient work as secretary of the War Service Committee of the Rubber Industry will be favorably remembered by the whole trade, has been appointed assistant manager of the Motor & Accessories Manufacturers' Association, 33 West 42d street, New York City.

Joseph P. Ripley, who has been in charge of the government sales of The Fisk Rubber Co., Chicopee Falls, Massachusetts,



J. P. RIPLEY.

in Washington during the last year, as well as manager of the Baltimore district of the company, has been promoted to manager of the central district, with headquarters in Chicago. Mr. Ripley entered the employ of the Fisk company in January, 1909, as salesman in the western New York district. He was subsequently appointed manager of the Baltimore branch in 1910 and Baltimore district manager in 1915. The central district includes 20 direct branches of the Fisk company and comprises the states of Illinois and Indiana and parts of Wisconsin, Iowa and Kentucky.

Frederick B. Peterson, the former director of the Bureau of Imports, War Trade Board, has become associated with Charles T. Wilson Co., Inc., crude rubber dealers, New York City.

Elmer E. Bast has been appointed Chicago representative of the United & Globe Rubber Manufacturing Cos., manufacturers of mechanical rubber goods, Trenton, New Jersey, with headquarters at 173 North La Salle street, Chicago, Illinois.

A. M. Whaley has been appointed Southern sales manager for The General Tire & Rubber Co., Akron, Ohio, with headquarters at Atlanta, Georgia.

Thomas L. Moore has been appointed Southwestern district manager for The General Tire & Rubber Co., Akron, Ohio, with headquarters at Dallas, Texas.

B. F. Wulff has been appointed general sales manager for the International India Rubber Corp., manufacturer of "South Bend" tires, Indiana. Mr. Wulff was formerly sales manager for the Century-Plainfield Tire Co., Plainfield, New Jersey, and was before that with the Kelly-Springfield Tire Co., in Chicago.

Claude Platt, recently central district manager of The Fisk Rubber Co., Chicopee Falls, Massachusetts, has been promoted to the position of special representative, with offices at the Chicago branch, 2508 Michigan Boulevard, Chicago, Illinois. Mr. Platt's new duties will take him among the manufacturers of the country, handling special and contract sales of both pneumatic and solid tires. Mr. Platt became identified with the Fisk company in 1905, when he was appointed Cleveland salesman, and later became manager of that branch. In 1909 he was appointed manager of the Chicago, and four years later manager of the central district.



CLAUDE PLATT.

J. T. Mahon, general manager of the Henderson Rubber Co., Baltimore, Maryland, spent 10 days in the early part of January in New York City.

Thomas A. Maguire has been appointed manager of the New York City office of Aldens' Successors, Limited, London, England, at 290 Broadway, succeeding Frederick W. Dunbar, resigned. Mr. Maguire's connection with the New York house covers a period of two years. He was formerly with Edward Maurer Co., Inc., New York City.

## TRADE NOTES.

The McGraw Tire & Rubber Co. of New York, Inc., has been dissolved and The McGraw Tire & Rubber Co., East Palestine, Ohio, has been authorized to do business in the State of New York. Its representative is G. A. Schumacher, 55 33d street, Brooklyn, New York.

The Everwear Rubber Co., Milwaukee, Wisconsin, has bought the plant and equipment of the Petley Rubber Manufacturing Co., and will continue the manufacture of high-grade mechanical rubber goods and molded specialties. The officers of the company are: Andrew Steele, president; F. C. Bunde, vice-president, and George W. Kliegel, secretary and treasurer. L. M. Bickett is in charge of the factory.

The Newman Tire & Rubber Co., Inc., dealer and jobber in automobile tires and tubes, has removed its general offices and warehouse to 244-246 West 54th street, New York City, to which address all communications should be sent. Both retail and wholesale business will be conducted and the several retail stores of the organization will obtain their merchandise from this central distributing point.

The Keystone Tire & Rubber Co., New York City, has entered into a contract with the Perfection Tire & Rubber Co., Fort Madison, Iowa, by which the latter concern will manufacture Keystone tires and ship them direct to the stores controlled by the Keystone company in the Middle West. The contract is on a cost-plus basis, similar to others made by the company in the past.

L. H. Butcher Company, Inc., New York City, has placed on the market as a compounding ingredient, "Diatomite," a natural silicious mineral of 1.61 specific gravity, which is offered as a substitute for carbonate of magnesia.

R. M. Loewenthal & Co., Inc., dealer in scrap rubber, announces the removal of its New York office to the factory, 343 Babcock street, Buffalo, New York, to which all communications should be addressed. Its new department devoted to the rebuilding of scrap automobile tires has developed to such an extent that the handling of scrap tires as scrap will be discontinued for the present.

O'Connor & Haupt, Inc., 71 West 3d street, New York City, was recently incorporated at \$2,000, as noted in our issue of January 1, 1919, and will manufacture pure gum hydraulic hat bags for manufacturers of men's, women's and children's hats, deal in unvulcanized rubber and tire repair materials and fabrics, and do all kinds of vulcanizing.

The True-Fit Waterproof Co., Inc., New York City, has been dissolved under the laws of the State.

The International Toy Co., Eau Claire, Wisconsin, has recently been incorporated under the laws of the State of Maine, as noted elsewhere, with a capital of \$100,000, to manufacture toys of all kinds. One of the specialties will be children's express wagons with Gillette auto truck tires. The officers are: L. D. Pangborn, president and general manager; Dr. S. P. Woodward, vice-president; A. P. Hansen, secretary and treasurer. Dr. Woodward is also president and treasurer of the Gillette Rubber Co., Eau Claire and New York City, while Mr. Pangborn, who is an experienced toy designer, has been chief draftsman and designer in the mechanical department of the Gillette Rubber Co. at Eau Claire.

The membership of the Society of Automotive Engineers increased by 717 during the year just past.

Orders placed by the government on December 7 for \$1,000,000 worth of tires included contracts for the United States Tire Co., Kelly-Springfield Tire Co., The Fisk Rubber Co., Firestone Tire and Rubber Co., and The Goodyear Tire & Rubber Co.

The Mulconroy Co., Pittsburgh, Pennsylvania, manufacturer of metallic hose, couplings, etc., removes January 1 from 528 Fourth avenue to the four-story warehouse at 112 Market street, Pittsburgh.

The Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, is endeavoring to obtain additional workers to fill the large number of orders for civilian goods which were delayed during the execution of government work, now concluded.

The American Chicle Co., 19 West 44th street, New York City, has contracted for the erection of a one-story brick building, 51 by 131 feet, on the north side of Borden avenue, Long Island City, to be used as a storage warehouse in connection with its present plant located there.

## COMPOSER AND MANUFACTURER.

THE NAME of Seneca G. Lewis has been brought into nationwide prominence lately, as that of a composer who has turned over the royalties of several popular compositions to the "New York Sun" Tobacco Fund for smokes for United States soldiers overseas.

Yet Mr. Lewis follows music, not as a profession, but as a pastime. He is a wide-awake, active business man, a natural organizer, a manager, and a rubber manufacturer.

He was born in Hartland, Michigan, and educated there and at Hillsdale College, Hillsdale, in the same state, graduating in 1889, after which he spent two years on a ranch in the "Wild West." On his return, he entered the employ of the Fletcher Hardware Co., Detroit, Michigan, and later became manager

of the sporting goods department of that organization.

In 1900, at Detroit, in company with W. E. Metzger, he promoted and managed the first automobile show held in the United States, and continued in management of this enterprise until he accepted the position of sales manager of the Winchester Repeating Arms Co. in 1904.

While in Detroit he found time to cultivate his musical talent, and for a time it seemed probable that he would adopt this as his life work. But his final decision was for a business career. In 1910, a personal friend, Charles M. DuPuy, induced him to undertake the reorganization of the Pennsylvania Rubber Co., Jeannette, Pennsylvania, in which the DuPuy family was financially interested. Accomplishing this, he acted as general manager, a position affording him the opportunity of carrying out plans he had formulated long before, and so successful were these that he brought the company to its present prominence. In 1918 he was elected vice-president as well as general manager.

For several years he transcribed hardly a melody, but the entrance of the United States into the war inspired him to produce a number of patriotic compositions, a song, a march, and a one-step, and to dedicate the royalties to the benefit of the boys in khaki. It is his hope that the royalties may ultimately reach \$25,000, nearly half of that amount having already been contributed.

Mr. Lewis is a member of several Pittsburgh clubs and is also president of the Jeannette War Service Union, an association formed to assist, in any way which may be necessary, soldiers returning from military to civil life.



SENECA G. LEWIS.

## NEW INCORPORATIONS.

- Ancon Tire & Rubber Co., Inc., January 4, 1919 (New York), \$4,000. C. A. Weldon, 591 7th street, Brooklyn, New York; S. Bernheim, 35 Nassau street; A. Hirsch, 847 Huntspoint avenue—both of New York City. To manufacture and deal in tires.
- Capitol Tire & Rubber Co., Inc., January 13, 1919 (New York), \$2,000. C. A. Weldon, H. S. Hartstein, A. Hirsch—all of 35 Nassau street, New York City. To manufacture tires and rubber goods.
- Carpenter Tire & Rubber Co., Inc., January 2, 1919 (New York), \$20,000. H. B. Carpenter, 30 Bay View Road, Rockville Centre, H. F. Ruder, 59 East Grove street, Lynbrook, Long Island, M. F. Hennessy, 165 Prospect Park West, Brooklyn—all in New York. To manufacture tires and rubber goods.
- Chadbourne & Moore, Inc., December 31, 1918 (Massachusetts), \$400,000. J. H. Chadbourne, 179 Lincoln street, Boston, W. B. Moore, 19 Summit avenue, Lynn, E. B. Moore, 106 Mt. Vernon street, Lowell—all in Massachusetts. Principal office, Boston, Massachusetts. To manufacture, buy, sell and deal in all kinds of rubber and rubber goods.
- Cohrs' Inner Tube Protectors, Inc., July 5, 1918 (New York), \$100,000. H. J. Cohrs, E. S. Cohrs—both of 60 Smith street, Jamaica, L. Gilbert, 175 Schenectady avenue, Brooklyn—all in New York. To manufacture inner protectors for auto and motorcycle tires.
- Continental Drug Co., February 25, 1918 (Delaware), authorized capital stock \$1,500,000. C. L. Rimlinger, M. M. Clancy, F. A. Armstrong—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, DuPont Building, Wilmington, Delaware. To manufacture, import, export, and generally deal in rubber goods, etc., and acquire buildings, machinery, and equipment necessary for the purpose.
- Continental Drug Corp. (Delaware), authorized December 4, 1918 (Illinois), \$245,000. R. C. Luly, agent, 825 Washington street, Alton, Illinois. To deal in rubber goods, etc.
- Eastern Waterproof Co., Inc., January 21, 1919 (New York), \$1,000. M. Berman, 812 Suburban Place, L. Berman, 910 Union avenue, M. Herman, 414 East 10th street—all of New York City. To manufacture raincoats, etc.
- Elmira Tire Sales Station, Inc., January 16, 1919 (New York), \$2,000. C. A. Weldon, H. S. Hartstein, A. Hirsch—all of 35 Nassau street, New York City. To sell tires.
- G. R. S. Tire Co., Inc., January 2, 1919 (New York), \$600. I. Gilbert, 175 Schenectady avenue, C. Reinhardt, 756 Flushing avenue, N. Stern, 45 Brevoort Place—all of Brooklyn, New York. To manufacture auto tires.
- Graham Tire & Rubber Co., January 10, 1919 (Delaware), \$50,000. F. H. L. and L. D. Graham—all of 2820 First avenue S., Minneapolis, Minnesota. Principal office with the Capital Trust Co., of Delaware, Dover, Delaware. To manufacture and sell pneumatic and solid tires and inner tubes, etc.
- Helwitz & Co., Inc., Alfred J., December 31, 1918 (New York), \$150,000. A. L. Helwitz, 1051 East 23rd street, R. C. Klotzter, 121 Dresden street, J. Aronson, 967 East 10th street—all of Brooklyn, New York. To manufacture rubberized cloth, etc.
- International Toy Co., December 16, 1918 (Maine), \$100,000. D. F. Drew, C. W. Hamilton, A. B. Farnham—all of Portland, Maine. Principal office, Portland, Maine. To manufacture all kinds of toys and express wagons with Gillette safety auto truck tires.
- Lion Tire & Rubber Co., Inc., December 30, 1918 (New York), \$1,500. H. S. Hartstein, 250 Havemeyer street; C. A. Weldon, 591 7th street; M. Kittay, 723 Monroe street—all of Brooklyn, New York.
- Lodi Rubber Works, Inc., January 3, 1919 (New Jersey), \$50,000. A. P. Calvet, 2641 Mansfield Place, Brooklyn, New York; M. Calvet, 60 South Maple avenue, Ridgewood; G. W. Parigot, Allendale avenue, Allendale—all of New Jersey. Principal office, Main street, Borough of Lodi, Bergen County; A. P. Calvet, agent. To buy, sell, and deal in all materials used in the manufacture of rubber and rubber goods.
- McNaull Tire Co., Inc., January 6, 1919 (Delaware), \$10,000. M. Franklin, L. H. Petzoldt, C. L. Mitchell—all of Philadelphia, Pennsylvania, Delaware agent, Corporation Trust Co. of Delaware, Dover, Delaware. To manufacture and deal in automobile tires and all accessories.
- Midco Tire Co., Inc., January 23, 1919 (New York), \$25,000. C. S. and S. Huntley, both of 260 Valentine Lane, Yonkers, New York; O. E. Drury, 1135 Commonwealth avenue, Boston, Massachusetts. To manufacture tires and rubber goods.
- Newburgh Tire & Rubber Co., Inc., December 23, 1918 (New York), \$1,500. H. S. Hartstein, 250 Havemeyer street, C. A. Weldon, 591 7th street; M. Kittay, 723 Monroe street—all of Brooklyn, New York. To manufacture tires.
- New Hide Manufacturing Co., January 4, 1919 (Delaware), \$100,000. C. L. Rimlinger, M. M. Clancy, O. B. Drew—all of Wilmington, Delaware. Principal office with the Corporation Trust Co. of America, DuPont Building, Wilmington, Delaware. To manufacture, and deal in leather, imitation leather, belting, etc.
- Norfolk Tire & Rubber Co., Inc., December 30, 1918 (New York), \$1,000. H. S. Hartstein, 250 Havemeyer street; C. A. Weldon, 591 7th street; M. Kittay, 723 Monroe street—all of Brooklyn, New York.
- Overman Cushion Tire Co., Inc., December 23, 1918 (New Jersey), \$150,000. M. C. Overman, 250 West 54th street; C. A. Taussig, 220 Broadway; W. F. Lowther, 43, Cedar street—all of New York City. Principal office, Mill street and Riverside avenue, Belleville, New Jersey, E. Nelson, agent. To manufacture and deal in automobile tires, rims, etc.
- Panco Rubber Co., The, January 4, 1919 (Massachusetts), \$100,000. F. Berenstein, 98 Bellingham street, Chelsea; W. Berenstein, 31 Hempstead Road, Forest Hills; M. Marcus, 77 Homestead street, Roxbury—all in Massachusetts. Principal office, Chelsea, Massachusetts. To manufacture, buy, sell, and deal in rubber, rubber goods, and rubber substitutes.
- Perpetual Tire Ukeep, Inc., January 15, 1919 (New York), \$100,000. M. E. Andre, 3799 Lake avenue; J. W. Phillips, 1959 Clifford avenue; W. Miller, 42 Sidney street—all of Rochester, New York. To manufacture, deal and lease tires.
- Protective Raincoat Co., Inc., January 3, 1919 (New York), \$5,000. Abraham and Eva LeBlanc, both of Middle Village; D. Wagner, 170 Nott avenue, Long Island—all in New York. To deal in rubberized apparel, etc.
- Raleigh Tire & Rubber Co., Inc., January 4, 1919 (New York), \$2,000. C. A. Weldon, 591 7th street, Brooklyn, New York; S. Bernheim, 35 Nassau street; A. Hirsch, 847 Huntspoint avenue—both of New York City. To manufacture and deal in tires.
- Risse Retreading Corp., January 16, 1919 (New York), \$52,500. M. W. McConnell, 229 West 52nd street, New York City, E. C. and E. M. Brainard, both of Chicago, Illinois. To repair tires.
- Risse Tire Corp., January 2, 1919 (New Jersey), \$90,000. F. R. Hansell, I. C. Clow, J. A. MacPeak—all of 417-419 Market street, Camden, New Jersey. Principal office, 417-419 Market street, Camden, New Jersey. To manufacture, sell, and generally deal in steel-studded leather treads for automobile tires of all kinds, etc.
- Saturn Spring Tire Manufacturing Co., The, December 5, 1918 (Wisconsin), \$10,000. M. C. Weis, 809 Sycamore street, Milwaukee; L. S. Branson, 1036 Wisconsin street; M. Rasmussen, 3404 Osborn Boulevard, both of Racine—all in Wisconsin. Principal office, Racine, Wisconsin. To manufacture automobile and truck tires.
- Saxet Tire & Rubber Co., Inc., December 23, 1918 (New York), \$2,000. H. S. Hartstein, 250 Havemeyer street; C. A. Weldon, 591 7th street; M. Kittay, 723 Monroe street—all of Brooklyn, New York. To manufacture tires.
- Schenectady Tire & Rubber Co., Inc., January 20, 1919 (New York), \$3,000. C. A. Weldon, H. S. Hartstein, A. Hirsch—all of 35 Nassau street, New York City. To manufacture tires.
- Siegel Shoe Co., December 31, 1918 (New Jersey), \$100,000. D. R. Siegel, M. Grossman, S. Hausman—all of Newark, New Jersey. Principal office, 786 Broad street, Newark, New Jersey. To purchase and sell boots, rubber, etc.
- Stanley-Meteer Co., Inc., December 23, 1918 (New York), H. W. Mateer, 215 Manhattan avenue; E. G. Turner, 214 West 110th street—both of New York City; J. F. Stanley, 530 54th street, Brooklyn, New York.
- Tire Service & Supply Co., Inc., December 28, 1918 (New Jersey), \$100,000. E. Windmiller, R. C. Gluck, H. Feder—all of 863 Bergen avenue, Jersey City, New Jersey. Principal office, 863 Bergen avenue, Jersey City, New Jersey. To manufacture and sell cars, carriages and vehicles of every description.
- Tough Rubber Co., Inc., December 5, 1918 (Massachusetts), \$25,000. E. Tough, 12 Prospect street, J. W. and E. H. Myers, both of 282 Cohanett street—all of Taunton, Massachusetts. Principal office, 38 Trestcott street, Taunton, Massachusetts. To buy, sell, manufacture, and deal in all kinds of rubber goods and used rubber machinery.
- Union Standard Rubber Co., January 4, 1919 (Delaware), \$3,000,000. S. S. Adams, Jr., G. J. Gray, R. A. Giacoma—all of Wilmington, Delaware. Principal office is with the Delaware Corporation Co., 10th and Market streets, Wilmington, Delaware. To manufacture and deal in rubber boots, shoes, clothing, tubing, tires, mats, etc.
- United States Garter Co., Inc., January 18, 1919 (New York), \$3,000. E. Levitas, 6215 20th avenue, Brooklyn, New York; B. Itkowitz, 79 Lewis street, M. Itkowitz, 95 Cannon street—both of New York City. To manufacture garters, etc.
- Universal Tire Repair Co., Inc., January 18, 1919 (New York), \$5,000. S. A. Davison, Rockville Centre; E. G. Darmstadt, Hewlett; E. E. Blakeley, Lynbrook—all of New York. To repair tires.
- Victory Tire & Rubber Co., December 18, 1918 (New Jersey), \$300,000. A. W. Britton, G. V. Reilly, L. H. Gunther—all of 65 Cedar street, New York City. Principal office, 15 Exchange Place, Jersey City, New Jersey. To purchase, sell, and deal in all kinds of rubber and rubber goods.
- Watertown Tire & Rubber Co., Inc., January 10, 1919 (New York), \$50,000. C. A. Weldon, 591 7th street, Brooklyn, New York; S. Bernheim, 35 Nassau street; A. Hirsch, 847 Huntspoint avenue—all of New York City. To manufacture tires and rubber goods.
- Wilmington Tire & Rubber Co., Inc., January 10, 1919 (New York), \$1,000. C. A. Weldon, 591 7th street, Brooklyn, New York; S. Bernheim, 35 Nassau street, A. Hirsch, 847 Huntspoint avenue—all of New York City. To manufacture tires and rubber goods.

## THE MID-WEST RUBBER MANUFACTURERS' ASSOCIATION.

A number of rubber manufacturers of the Central Western States met on January 7, 1919, at Chicago and formed the Mid-West Rubber Manufacturers' Association. John W. McGuire, The Brunswick-Balke-Collender Co., was elected president. John T. Christie, Hawkeye Rubber Co., Des Moines, Iowa, was made vice-president, and Preston E. Roberts, Perfection Tire & Rubber Co., Fort Madison, Iowa, was chosen as secretary. H. V. Conradt, Kokomo Rubber Co., Kokomo, Indiana, is the treasurer.

The directors are: Marshall D. Wilbur, Palmer Tire & Rubber Co., St. Joseph, Missouri; M. P. Nicol, Ten Broeck Tire Co., Louisville, Kentucky; and C. Wright, Racine Auto Tire Co., Racine, Wisconsin.

Representatives of the following companies now constitute the membership: Johnstone Tire & Rubber Co., Laporte, Ind.; Century Rubber Works, Inland Rubber Co., Dryden Rubber Co., Featheredge Rubber Co., and The Brunswick-Balke-Collender Co., Chicago; Twin Tube & Rubber Co., Chicago Heights; Boone Tire & Rubber Co., Sycamore, Illinois; Wilson Tire & Rubber Co., Springfield, Illinois; Double Fabric Tire Co., Auburn, Indiana; Lion Tire & Rubber Corp., Lafayette, Indiana; Iowa City Tire & Rubber Co., Iowa City, Iowa; Hawkeye Tire & Rubber Co., Des Moines, Iowa; Perfection Tire & Rubber Co., Fort Madison, Iowa; Sioux City Tire & Manufacturing Co., Sioux City, Iowa; Racine Auto Tire Co., Racine, Wisconsin; Indiana Rubber & Insulated Wire Co., Jonesboro, Indiana; Kokomo Rubber Co., Kokomo, Indiana; Federal Rubber Manufacturing Co., Cudahy, Wisconsin; Ten Broeck Tire & Rubber Co., Louisville, Kentucky; Curtis Tire & Rubber Co., Muskegon, Michigan; Cupples Co., St. Louis, Missouri; Gillette Rubber Co., Eau Claire, Wisconsin; Mid-Continent Tire & Manufacturing Co., Wichita, Kansas; Kansas City Tire & Tube Co., Kansas City, Missouri; Palmer Tire & Rubber Co., St. Joseph, Missouri; Burdick Tire & Rubber Co., Noblesville, Indiana.

## THE RUBBER TRADE IN OHIO.

By Our Special Correspondent.

THE Firestone Tire & Rubber Co., Akron, reports increasing business in its footwear sales. This branch of the business was started only a year and a half ago, but has grown rapidly. Fourteen new salesmen have recently been added to the force, which is now four times the original number. A convention for salesmen was held during the first week in January, the principal feature being a training school dealing with selling principles and policies. The total sales in the footwear department during 1918 amounted to \$2,216,000, as compared with \$715,000 in 1917. The present output of light footwear is 2,500 pairs daily, and several new lines have been added.

The Firestone Tire & Rubber Co., Akron, has paid to its employes since September 12, 1918, when it inaugurated its plan for group insurance, \$15,000. The amounts going to families and dependents of deceased employes ranged from \$500 to \$1,000, and included 26 cases where the deceased had been in the employ of the company longer than 30 days, while one had been employed more than eight years.

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The Firestone Steel Products Co., Akron, manufacturer of solid and pneumatic tire rims and S. A. E. bands, has added three new representatives to its force: A. D. Droege, manufacturers' representative; C. W. Flick, Eastern representative; J. C. Bailey, Western representative.

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A band of 50 pieces has been organized among the employes of The B. F. Goodrich Co., Akron, under the direction of Clark Miller, former leader of the Eighth Regiment Ohio National Guards Band. The officers are: Edward Connelly, president; William Overholser, vice-president; and L. F. Riley, secretary.

The 25 per cent bonus recently paid employes of The B. F. Goodrich Co., Akron, throughout the country, amounted to \$2,000,000.

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The Wellman-Seaver-Morgan Co., Cleveland, has opened a San Francisco office at 415-417 Rialto building, in charge of Norman S. Ross. The territory covered will include California, Nevada west of the 115th meridian, Lower California, and the counties of Josephine, Jackson and Klamath, Oregon.

Horace N. Trumbull has been appointed advertising manager of the Wellman-Seaver-Morgan Co., Cleveland. Mr. Trumbull has recently been discharged from the Engineers Officers' Training School at Camp A. A. Humphreys, Virginia.

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The stockholders of The General Tire & Rubber Co., Akron, have approved action of the board of directors with reference to increasing the capital stock of the company from \$1,000,000 to \$2,500,000. The additional capitalization is for new buildings and machinery.

The following directors were elected: M. O'Neil, W. O'Neil, T. F. O'Neil, W. E. Fouse, G. F. Burkhardt, W. L. Beckley and J. A. Diebolt. The officers were reelected as follows: M. O'Neil, president; W. O'Neil, vice-president; Charles Herberich, treasurer, and W. E. Fouse, secretary.

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The L. H. Butcher Co., Inc., dealers in colors, chemicals, minerals and industrial ores, 100 William street, New York City, have opened an office in the People's Savings and Trust building, Akron, in charge of George H. Jacobs, where a stock of standard materials will be carried.

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G. P. Blackiston has been appointed head of the cooperative and advertising department of The American Rubber & Tire Co., Akron. He has been advertising manager of the Packard Electric Co., Central Steel Co., etc., and is an enthusiastic automobile.

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The Mohawk Rubber Co., Akron, recently recognized the efficiency of its salaried employes throughout its branches as well as in the home office, by a 10 per cent bonus.

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The Goodyear Tire & Rubber Co., Akron, recently announced that the company will not follow the plan of many concerns and give bonuses, but will recognize deserving employes by a salary increase.

George Spalding in charge of the solid tire department of the Goodyear Tire & Rubber Co., Akron, was recently awarded a 20-year service pin.

Major William Ryan, the only Akron air ace, who served two years with the Australian Flying Corps overseas, has returned to the employ of The Goodyear Tire & Rubber Co., Akron, as an instructor in the factory school.

Lieutenant C. V. Newbold, former attorney of the accounting department of The Goodyear Tire & Rubber Co., Akron, was killed in the battle of Soissons. His widow has been given the Distinguished Service Medal awarded for gallant conduct.

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The India Tire & Rubber Co., Akron, originally incorporated under the laws of the State of Ohio as "The India Rubber Company," on December 1, 1916, has now changed to the longer name. Its factory is at Mogadore, a suburb of Akron, where the company owns 19 acres of land with waterpower rights. The factory building proper is two stories high, with basement 60 by 232 feet, besides an "L" of the same height, 40 by 80 feet, of steel, brick and concrete construction. Until recently the concern has manufactured fabric tires, but it is now making cord tires.

The directors are: J. M. Alderfer, J. K. Williams, D. A. Grubb, Paul C. Searls, A. T. Kingsbury, J. W. Chamberlain, H. Lloyd Williams, C. C. Fenton, G. W. Santee, E. A. Armstrong and J. S. Fishburn. The company is capitalized at \$400,000 common stock and \$100,000 preferred, of which \$375,000 of the common stock has been sold at par.

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The Republic Rubber Corp., Youngstown, has elected Harvey J. Woodard and Mark W. Roe vice-presidents, the former to have charge of sales and the latter to be in charge of the plant.

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The Oak Rubber Co., Ravenna, has purchased a brick factory building three stories in height, 50 by 100 feet, with a floor space of 25,000 square feet. There are several smaller buildings on the site. New equipment is being installed for an increased production of toy balloons, the company's specialty.

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The Victory Rubber Co., Springfield, has added four new men to its force. L. H. Cooke is to be in the capital financial department; Ira A. Stowe has been appointed district sales manager in Southern territory; E. D. Valentine has been placed in charge of installing new rubber-working machinery in the engineering department, and Frank X. Lothschuetz will cover the Ohio territory as a salesman.

The company recently completed a two-story building of brick and concrete, which is being used exclusively for pneumatic tire production. The new "Victor" cord tire will soon be ready for the trade. Preliminary tests are said to be very gratifying.

The company is to organize an export department which will include direct representation in Europe and South America.

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The Premier Rubber & Insulation Co., Dayton, has increased its capitalization from \$100,000 to \$150,000 and has enlarged its factory floor space by the addition of a three-story factory. The concern makes insulation products of hard rubber, Bakelite,

Condesite or Premierite, the latter being one of its own specialties.

The K & W Rubber Co., Ashland, has removed its factory and general office to Delaware. A new factory building of modern brick construction has been erected, covering 30,000 square feet. The site covers about 13 acres of ground. In addition to "Maxotires," the company will manufacture other rubber goods, for which purpose suitable machinery and equipment is to be installed.

The Cincinnati Automotive Trade's Association, 654 Main street, Cincinnati, has elected the following officers: A. C. Munday, president, Gloucester Supply Co.; E. N. Stern, vice-president, C. & D. Auto Supply Co.; R. R. Woolley, treasurer, Buckeye Tire Repair Co.; Ralph R. Curl, secretary, H. W. Johns-Manville Co.; finance committee—J. W. Brumbaugh, I. J. Cooper Rubber Co.; W. W. Robertson, Miami Vulcanizing & Rubber Co.; G. A. Jackson, Dixie Vulcanizing Co. In addition to the officers the board of directors includes R. Herold, Herold Motor Car Co.; Paul Schneider, Auto Tire & Repair Co., and E. J. Leesman, Firestone Tire & Rubber Co.

The McGraw Tire & Rubber Co., East Palestine, has just completed plans for insuring its employes to the amount of more than \$1,000,000. The premiums will be paid by the company. Special features include automatic increase of the amount of each policy as the employee's time of service increases; a special disability clause whereby in case of permanent disability the amount of the policy will be paid in monthly instalments; the payment of the face value of the policy to the beneficiary at the death of the employee; and a conversion clause which enables the holder of the policy to continue the insurance after leaving the company's employ. The life insurance plan is augmented by a benefit association carried on by employees, insuring financial protection against unemployment, illness, or accident. Membership in this association also includes recreation privileges in the McGraw Club.

#### THE RUBBER TRADE IN MASSACHUSETTS.

*By Our Regular Correspondent.*

BUSINESS seems on the way to recovery from the slump which followed the signing of the armistice, and the prospects are for an early approach to normal. Tire manufacturers, who have been restricted to a percentage output, have increased their production. Boot and shoe manufacturers, most of whom are behind in deliveries, are pushing their mills to full tickets, while orders are being booked for next summer and fall delivery. Clothing men are perhaps less active than are manufacturers in some other lines. The makers of mechanicals report a fair trade with expectations of increase as the year progresses.

As a rule, the rubber goods manufacturers in this section are not only willing but anxious to return to their original positions the employes who enlisted, and who are now returning from the battle area. In many cases the manufacturers are really anxious to secure the services of these competent workers, for few, if any, of the rubber factories are oversupplied with experienced workmen.

An event of the month has been the Victory Shoe Style Show at Symphony Hall. This was a most pronounced success. It was timed to be held when the shoe buyers came to the Boston market, and a round-up of the leading hotels furnished a list of between 150 and 200 buyers, nearly every state in the Union being represented, as well as Canada and England. The show followed in general program the one held at the Copley Plaza Hotel last July, being under the same directorship, Robert J.

Walsh being manager. The floor of Symphony Hall was laid out so that exhibitors had spaces around the sides. On the stage was a beautiful floral arrangement, termed "The Garden of Styles," and from this was a flower-decorated runway on which the thirty or more chic and handsome models paraded, clad in becoming costumes of the coming spring and fall. Although these were simply accessory to the appropriate footwear worn, they enhanced greatly the attractiveness of the exhibits. At the back of the stage was a silvered screen on which was projected the name of the manufacturer whose shoes were being exhibited by the "model" at the moment. Band and orchestral music was furnished, and the capabilities of the great symphony organ were brought out by eminent organists. This was especially true during the afternoons, when, besides the organ recitals, moving pictures were projected on the screen, depicting the various processes of shoemaking, and views of the factories, where the exhibited samples of footwear were made. Naturally, most of the exhibits were those of shoes and leather, but there were a few representatives of the rubber trade.

The United States Rubber Co., New York City, exhibited its varied line of "Keds," a specially attractive kind of rubber-soled, cloth-upper shoes, in both high and low styles, and in white and a variety of colors. The booth was in charge of J. T. Cooper, of the Boston branch of the company.

The Hood Rubber Co., Watertown, shewed its "Leisure" footwear, a high-class line of Oxfords and boots of fabric with rubber soles.

The Batterman Rubber Co., Framingham, exhibited its specialty "Toesans," footholds which are the exclusive production of this house. The Avon Sole Co., Avon, manufacturer of "Du-Flex" soles and heels, showed a fine variety of shoes equipped with these specialties.

The Foster Rubber Co. made a comprehensive exhibit of its great variety of "Catspaw" rubber heels.

So successful was this exhibition that the managers announce a repetition at Symphony Hall early next July during the usual summer influx of visiting buyers.

In 1916 the Boston Woven Hose & Rubber Co., Cambridge, inaugurated a plan to present to its older employes gold coins at New Year's. At that date 105 persons who had been in continuous service more than 10 years, were thus remembered. This year the number had increased to 190, who shared in the distribution at a meeting held at the plant on December 31. On account of the war savings campaign, the last two distributions have been in war savings stamps, the presentation being made by Mr. Fellows, factory manager. Addresses were made by George E. Hall, president and general manager, and by Henry B. Sprague, vice-president and treasurer. The latter claimed he was entitled to be called a veteran employe, having completed more than twenty years in the service of the company. At the meeting it was stated that eight employes had been with the company over thirty years, and four others twenty-five years.

A benefit plan has been put into effect by the Hood Rubber Co. at its factory in Watertown, by which employes, in case of sickness, will receive an allowance of from eight to twelve dollars a week, and in case of death, from \$200 to \$1,000. Any one who has been in the employ of the company for three months is eligible to the benefits, the lowest amounts being paid to those with such a term of service, while the highest go to those workers who have been employed five years or more. There is no cost to the employe. A curious fact is that an hour and a half after the plan went into effect a \$1,000 death benefit was paid. The plan affects about 7,500 employes, of whom approximately one-third are women.

William Jameson, superintendent of The Fisk Rubber Co., Chicopee Falls, has been elected president of the Board of Trade of that town.

The Social and Athletic Association of The Fisk Rubber Co., Chicopee Falls, has flooded its big park, thus making a skating rink, and has built a toboggan slide, which has in it an angle which will ensure exciting and exhilarating speed, and now the only thing necessary is freezing weather. Every employee's custom now is to consult the thermometer at least three times a day.

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It may be remembered that the majority of the stock of the Boston Belting Co. and the Roxbury Carpet Co., whose factory adjoins the rubber mill, were purchased by Willett, Sears & Co., which organization later transferred its interests in these two corporations to certain banking interests in this city. William A. Gaston, prominent in financial, legal and political circles in this city, has been elected president of the two companies, and Henry B. Sprague, treasurer. The directors are Frederick E. Snow, Frank W. Knowlton, John C. Rice, Otis B. Prescott and William A. Gaston. It is reported that the business of these concerns will be pressed actively and will be divorced from the interests of Willett, Sears & Co., or any of their various enterprises. The Roxbury Carpet Co. has offices in the downtown district, but the business offices of the Boston Belting Co. will continue at the plant, 80 Elmwood street, Roxbury district. The new management proposes to push the business vigorously and to extend its trade.

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The business of the Sterling Fountain Pen Co., which is owned and operated by the Davidson Rubber Co. of this city, is offered for sale by the latter. As may be remembered, the Davidson Rubber Co. has of late years reduced its items of production to a comparatively small number of specialties, preferring to manufacture in large lots rather than in great variety. The pen business does not fit in with this policy, neither does it go so well in a factory devoted mainly to soft rubber goods, while the distributing end is in the stationery instead of the drug trade. The Sterling Fountain Pen Co. was established in 1884, and has patents with several years to run.

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James J. Rafferty, director of the Bureau of Commerce and Industry, Manila, Philippine Islands, is now in this country to explain the advantages of investments in a tropical country under the United States flag, rather than in countries under European governments. He advises rubber planting there, arguing that in any such emergency as that recently in the Federated Malay States, the American rubber industry would be free from domination by other governments. He called upon some of the larger rubber manufacturers here, explaining the peculiar advantages of raising rubber in our Far Eastern possessions.

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William H. Moore, until recently assistant manager of the New England organization of The B. F. Goodrich Co., having been promoted to the position of manager of the Pittsburgh, Pennsylvania, branch of that company, was the guest of honor at a dinner given by his associates at the Copley Plaza Hotel, attended by 85 heads of departments and salesmen from the Boston headquarters and the branches at Worcester and Springfield, Massachusetts; Providence, Rhode Island; Manchester, New Hampshire; Burlington, Vermont, and Portland and Bangor, Maine, were present. Joseph J. Buckley, Boston manager of sales, in behalf of those present, tendered to Mr. Moore a handsome gold watch, chain, and charm in appreciation of him as a fellow worker. The dinner was supplemented by a theater party.

Mr. Moore entered the employ of the company nearly ten years ago, bringing to his new endeavors an extensive business experience. Determined to learn the business from the ground up, he worked first as a tire repairer, subsequently passing through other departments, absorbing practically their details, until he was advanced to the position he relinquishes to assume the more important one in Pittsburgh.

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The old established firm of Chadbourne & Moore, manufacturers of elastic web at Chelsea, with offices at 179 Lincoln street, Boston, has been dissolved, and a corporation, known as Chadbourne & Moore, Inc., has been organized under the laws of Massachusetts, with a capital of \$400,000, which has taken over all the assets of the firm and will continue to carry on the business at the same Chelsea and Boston locations.

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B. F. Chamberlin, organizer and former vice-president and general manager of the Walpole Shoe Supply Co., and later manager of the shoe supply department of the Revere Rubber Co., Chelsea, has taken over the business of that department, and will continue it with offices and stock rooms at 184 Summer street, Boston. Mr. Chamberlin organized the business in 1908, and successfully managed it as a branch of the Walpole Rubber Co. until 1914, when the latter company became financially embarrassed. The business was taken over by the Revere Rubber Co. and has been under Mr. Chamberlin's management up to the present. Besides other supplies for shoe manufacturers, he will continue to handle rubberized cloth and "Gem" insole duck and material.

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At the meeting of the National Shoe Wholesalers' Association, held in Boston, January 9, 1919, George H. Mayo and Charles W. Barnes of the United States Rubber Co., explained the present rubber footwear situation and advised the wholesalers to send in their detailed orders as early as possible if they desired them completed in full. They told why: because workmen and workwomen could not be transferred from making one line of rubber footwear to another, some departments in the various factories were rushed to capacity and others running to part time on small tickets.

Robert L. Rice, sales manager of the Hood Rubber Co., Watertown, also addressed the meeting, and urged wholesalers to look closely after their tennis orders, as there was a likelihood of a greater demand than supply later in the season.

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A. H. Elder, for many years connected with the Boston Belting Co., resigned from that company recently to accept a position on the sales force of the Electric Hose and Rubber Co., Wilmington, Delaware, and is representing that Company in New England with headquarters at 161 Devenshire St., Boston, Massachusetts.

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George H. Hichborn, general manager of the United States Rubber Co., New York City, was one of the speakers at the thirty-third annual banquet of the Association of Railroad and Steamboat Agents at Young's Hotel, Boston, Saturday evening, January 11, 1919, at which about two hundred guests were present. Mr. Hichborn advocated the return of the railroads to private ownership.

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The Boston Automobile Dealers' Association Show, to be held March 20-25, 1919, in Mechanics' Hall, Boston, will undoubtedly be a great success, as space is rapidly being allotted. The Motor & Accessories Manufacturers' Association will participate, and a large representation is expected.

## THE RUBBER TRADE IN RHODE ISLAND.

*By Our Regular Correspondent.*

FOR the first time since the outbreak of the great world war in 1914, the beginning of the new year 1919 found a general shut-down among the rubber manufacturing establishments throughout Rhode Island. It was the first opportunity the mills had had for a complete overhauling and a thorough inventory. The Alice Mill and Millville plants of the Woonsocket Rubber Co., closed December 28 at noon and remained closed until Thursday, January 2. This shut-down gave a vacation to approximately 2,500 operators, 1,700 in the Alice Mill at Woonsocket and 800 in Millville. The National India Rubber Co. at Bristol and the Candee in New Haven were also closed during the same period. About 8,000 employees in all were affected.

James W. Franklin, superintendent of the footwear division at the factory of the National India Rubber Co., Bristol, was presented with a handsome electric lamp by the foremen and forewomen of that department as a Christmas remembrance. Isaac H. Gorman, foreman of the cutting department received a chair, and John Lavender, foreman in the footwear division, a shaving set.

Notices were posted at the factory of the National India Rubber Co., on January 15, announcing the following appointments: Edward I. Cooper, assistant superintendent of the footwear division; George E. Shaw, assistant superintendent of the wire division; Col. Andrew W. Anthony, foreman of the stitching department of the footwear division; John A. Wahlgren, assistant general sales manager of the wire division; and Lester K. Munroe, assistant treasurer.

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On New Year's Eve, Harris Hall, Woonsocket, was the scene of a large gathering at the first annual concert and ball, under the auspices of the employees of the Alice mill, given for the benefit of the band. The hall was decorated with flags and bunting, and the band appeared for the first time in uniforms furnished by the corporation. A substantial sum was added to the band's fund.

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Chief Justice Parkhurst of the Rhode Island Supreme Court has filed an important opinion of the court, during the past month, in the case of Eli Frank et al., receiver of the Dreadnaught Tire & Rubber Co., against the Broadway Tire Co. of this city. Both sides took exceptions to decisions made by a justice of the Superior Court some time previously, in relation to a demurrer to a replication.

The main argument before the Supreme Court was on the question whether the receiver of a foreign corporation, the plaintiff corporation being engaged in business in Maryland, could maintain an action on a contract where the corporation had not complied with the statute requiring every foreign corporation not a Federal one to appoint a resident of this state as attorney upon whom all processes, including the process of garnishment, may be served. This is the only point that the Chief Justice thinks it necessary for the court to decide. Counsel for the plaintiff argued that as the receivers could not comply with the statute they and the interests they represented were not bound by it and ought not to be held to suffer the consequences of the Dreadnaught company's default and that the receivers should be allowed to maintain the present suit.

Chief Justice Parkhurst says: "We found no ground for such contention. It is generally held that a receiver stands in the shoes of the person over whose estate he has been appointed and is clothed only with such rights of action as might have been maintained by such person."

Christmas was made a season of good cheer in reality in this community by a number of concerns connected with the rubber industry. Cash bonuses based on individual earnings were given to the employees of the Collyer Insulated Wire Co., Pawtucket, who had served a certain length of time. The Smith Webbing Co., Pawtucket, gave money to each employee in proportion to the individual's salary during the last five months. A Christmas present of \$50,000 was paid out by the Hope Webbing Co., of Pawtucket, to its 1,300 employees. In order to encourage thrift each employee received a large envelope containing in three equal amounts, a Liberty Bond of the fourth issue, War Saving Certificates and War Saving Stamps as well as a sum of money. This envelope was marked "March of the 1300," referring to the work of the 1300 employees of this concern during the period of the war.

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The Tubular Woven Fabric Co., with a plant at Main Street, Pawtucket, has increased its capital stock from \$300,000 to \$350,000 according to its certificate filed at the office of the Secretary of State.

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The American Electrical Works plant, at Phillipsdale, resumed operation Monday, January 6, after a two weeks' shut-down for overhauling of boilers and machinery and taking inventory.

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The City Council of Newport has approved an appropriation of \$1,000 for 800 feet more or less of 2½-inch hose; \$200 for chemical hose, and \$150 for rubber clothing.

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Harry Webster, of Milford, Massachusetts, formerly head draftsman for the American Wringer Co., Woonsocket, has been promoted to the position of production manager in charge of the entire output of the company.

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The Bourn Rubber Co., has recently purchased another lot of land, with buildings thereon, located on Warren street, adjoining the present property of the concern.

## THE RUBBER TRADE IN NEW JERSEY.

*By Our Regular Correspondent.*

ARTHUR E. FRISWELL, who has been connected with various rubber concerns in this country and abroad, is now associated with the New Jersey Car Spring & Rubber Co., Inc., Jersey City, in the capacity of consultant and general utility man.

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The Overman Cushion Tire Co., Inc., 250 West 54th street, New York City, is building a one-story building 60 by 180 feet and a powerhouse 50 by 53 feet as additions to its plant at Belleville.

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The Dural Rubber Corp., Flemington, will add a new unit to its factory to take care of its production of tires and tubes, and a new office building to accommodate its increased business.

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Henry L. Hornberger has given up the profession of advertising to become general sales manager of the Globe Rubber Tire Manufacturing Co., Trenton. He will make his headquarters at the New York office.

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F. N. Hammerstrom has been made vice-president and supervisor of sales of the Essex Rubber Co., Trenton. He was

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formerly general manager of the Thermoid Rubber Co., Trenton, and has recently been commercial manager of the Wellsbach Co., Gloucester, New Jersey.

Samuel J. Mullane has been promoted to the position of superintendent of the Mattson Rubber Co., Lodi. He has been in the employ of the company for fifteen years.

John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., presided at the New Year's dinner given at the Trenton Country Club to the seventy-five boy caddies employed there. It was the fifth annual event of this sort for the youngsters that has been arranged by Mr. Lambert, who is chairman of the caddies' dinner committee. Mr. Lambert,



TRENTON COUNTRY CLUB CADDIES AT NEW YEAR'S DINNER.

Charles E. Stokes, vice-president of the Home Rubber Co., and others gave talks. A feature of the dinner was the singing of parodies on popular songs, in which the caddies paid their respects to the golf players. An orchestra furnished music for the occasion. Mr. Lambert is an expert golf player and takes a big interest in the boys employed at the club. In the accompanying photograph, the notch at the top indicates where Mr. Lambert is standing. His son Raymond is on his left in uniform.

Joseph H. K. Lambert, son of John A. Lambert, secretary-treasurer of the Acme Rubber Manufacturing Co., has received his honorable discharge from the Navy and will resume his duties as assistant manager of the Acme company. Mr. Lambert's other son, John R. Lambert, is a member of the Gas Defense Service, and is stationed in New York.

Edward M. LaRue, who has been in charge of the service department of The Empire Rubber & Tire Co. for the past five years, has gone to Kansas City, Missouri, to become assistant manager of the Empire branch store in that city.

The employees of the Ajax Rubber Co. are to organize a patriotic league and benevolent association, 100 per cent strong, to assist members who become maimed, ill, or disabled while in the employ of the company. It is also intended to promote the education, Americanization, and material welfare essential to both employer and employee.

The store of the Federal Tire and Accessory Co., Wrightstown, New Jersey, was gutted by fire recently. The loss is about \$3,000. The fire was caused by spontaneous combustion.

William Henry Sayen, Jr., treasurer of the Mercer Rubber Co., returned from France recently and gave an interesting talk on the war to the employees of the company. Mr. Sayen and his brother went to France last May as Y. M. C. A. workers with the French army. His work took him only a few kilometers

from the front and his closest call was when he and a friend were caught in a barrage and his friend's legs were blown off. On another occasion a German aviator blew off part of the roof above them with an aerial torpedo. Following Mr. Sayen's talk to the employees an entertainment with vocal and piano selections was held in the plant.

The good will and chattels of the North American Rubber Co., a Delaware corporation, with an establishment at 34 Parker avenue, Trenton, for the manufacture of tires, was sold by Sheriff Fred P. Rees recently to Solomon Mixer, of New York, for \$560. The automobiles were sold to different parties. After the United States District Court had appointed Anthony S. Brennan as receiver for the company it decided that the concern was not bankrupt and ordered the sale of the chattels by Sheriff Rees. The machinery, etc., were sold to satisfy a judgment of \$2,896.40, secured in the New Jersey Supreme Court by Robert C. Dunham, of New Brunswick, New Jersey.

Lieutenant Charles A. Wilson has received an honorable discharge from the Army and will again represent the Dural Rubber Corp., Flemington, New Jersey, in New York City. Because of his commercial knowledge Mr. Wilson was one of eight privates selected from 20,000 men at Camp McClellan as candidates for commission without going to training school. When the armistice was signed he had become sub-depot quartermaster at Camp Hancock and had been recommended for a captaincy.

The Joseph Stokes Rubber Co. made a substantial gift of money to the Poor Kiddies' Christmas Fund during the holidays. John A. Lambert, secretary-treasurer of the Acme Rubber Manufacturing Co., who was chairman of the last Red Cross drive, was also an active worker during the holidays.

#### THE RUBBER TRADE IN CONNECTICUT.

By Our Special Correspondent.

THE Todd Rubber Co., Waterbury, has been succeeded by F. H. Potter, Inc., as of January 3, 1919. The incorporators are: A. V. Miller, N. R. Bronson, F. H. Potter. The officers are: H. A. Hoadley, president; F. H. Potter, treasurer; N. R. Bronson, secretary. The concern is incorporated under the laws of the State for \$25,000. It will distribute Kelly-Springfield and Gillette tires exclusively in Waterbury, Naugatuck, Thomaston, Torrington, Winsted, Norfolk, and Canaan, and will probably add a line of wholesale and retail automobile accessories.

The Seamless Rubber Co. had an industrial open house night at the Y. M. C. A. on the evening of January 15. The entertainment included mass singing and an exhibition by the Senior Leaders' Club in the gymnasium, followed by a social program and light refreshments.

William LaPine, Danbury, is acting as distributor in the State for the fiber soles manufactured by the Norwalk Tire & Rubber Co., Norwalk. The output has increased 100 per cent during the last two months.

Each of the 500 employees of the Norwalk Tire & Rubber Co., Norwalk, received a War Savings Stamp for a Christmas present.

Thirty young women who have been employed in the gas-mask department of the Hartford Rubber Works, Hartford, gave a luncheon to celebrate the completion of the contract. A chair was presented to the foreman, Edwin R. Sawyer, and a smoking set and tobacco to the assistant foreman, Herbert Martin, by the "eye" table workers in the same department at the celebration which took place when these workers were laid off, following the signing of the armistice.

## The Rubber Trade in Great Britain.

By Our Regular Correspondent.

### THE AFTERMATH OF WAR.

THE SIGNING of the armistice did not, of course, bring all contract work to a close, though it meant that all pressure was suspended and overtime rendered unnecessary. The general opinion among rubber manufacturers is that the government departments have treated them very fairly where deliveries on contract were no longer required. As a rule the officials have discussed matters with the manufacturers, and where it was evident that hardship or loss would result from the goods being left on the manufacturers' hands, satisfactory terms have been arranged. The interest of the moment is the transfer from war requirements to civilian business and although the civilian demands are large, owing to depleted stocks, competition of the keenest character has set in at once. This is especially the case with waterproof goods on account of the large number of plants available.

### COMPETITION IN THE PROOFING TRADE.

It is said that the number of spreading machines in Great Britain has increased three-fold during the war, and the problem is how to find work for them. Not only have old established firms largely increased their number of machines, but there are now new works in existence, and these latter have not the old trade connections that the former have. As one instance of the result of competition may be mentioned a certain proofing which fell from 1s. 6d. to 10d. per yard in the course of a few days. Competition of this sort in the old days meant increased use of substitute. Probably reclaims will now be in greater demand than substitute for reducing costs, though their use is more complicated owing to the calculations necessitated from their varying content of mineral matter. A large demand has sprung up lately from both sexes for the black-surface, single-texture waterproof. It is a good many years now since this class of goods was almost a monopoly of one or two firms, owing to the details of the manufacture not being generally known. At the present time these black-surfaced goods are being turned out successfully by most of the firms which specialize in spreading. They are now of all qualities and prices and the high-quality formula, which alone was used twenty-five years ago, has now to compete with many lower-grade formulas.

Business generally in all trades is in a very stagnant position as nobody seems inclined to buy anything. The idea is that prices must fall all around and purchases are being deferred wherever possible. This applies also to rubber chemicals; manufacturers and agents are pushing for contracts at figures which certainly show a decline on those which have been ruling, but buyers are holding off as they think better terms will shortly be forthcoming. The very keeness of sellers to fix up contracts is a proof of what they think.

Solvent naphtha has dropped but is still quoted over 3s. a gallon, making its careful use a necessity in competitive work.

It is understood that the whole situation as regards the influence of the greatly increased spreading capacity of proofing works in relation to the business likely to be available is a matter which is now engaging the close attention of the India Rubber Manufacturers' Association, and it will be interesting to watch developments.

Matters in the mechanical trade are in much the same state of suspended animation. The head of a prominent firm told me that new business recently had been of the most meager description, though this did not cause him any concern as he had plenty of work held up which he could now resume. The general election has naturally been a disturbing factor which was followed closely by the Christmas holidays.

In times of good business very few firms go into court to settle disputes and there has been very little litigation during the last four years. It is natural to suppose that the lawyers will now have a better time, and indeed I hear of one or two cases, and by no means insignificant ones, which are expected to come into court before long.

### CONDUCT OF THE RAW RUBBER TRADE.

In some recent remarks on the raw rubber trade in "The Economist," it is stated that probably no trade is conducted in a more haphazard and unorganized manner, and this because of the large number of individual producers, keen competition between them and conflicting vested interests which are permitted to stand in the way of every reform. This results in extremely wide price fluctuations from time to time doing much harm to every branch of the trade.

As an attempt to deal with a situation in which there are very dangerous elements it is suggested that a "term" market should be established in London and that all British-owned rubber should as far as possible be shipped to this country. This has been done with useful effect in the case of coffee and some other markets. The further statements to the effect that the trade is faced with critical conditions in the near future, and that rubber will probably be selling for long periods at less than the cost of production will, by some authorities at any rate, be considered as couched in a too pessimistic tone.

### RUBBER IN AIRPLANES.

Day by day we are being enlightened on matters which have been kept secret during the war, and airplane construction is a subject which is now being talked about openly by authorities from Lord Weir, the Air Minister, downwards. It certainly appears that we are on the eve of a great development of airplane construction all over the world, and the article in the December issue of THE INDIA RUBBER WORLD on "Rubber in Airplane Construction" is of timely interest to the rubber trade. Many rubber goods, of course, have been made for the service, but they have been made to specification and very little detail as to their specific use has been vouchsafed. Now that the seal of secrecy has been broken there will be scope for individual enterprise.

### WASTE RUBBER SALVAGE.

This scheme, to which I made a brief reference on a former occasion, has now been developed and put into action. It is under the joint organization of the Ministry of National Service, the National Salvage Council, the British Red Cross and the Order of St. John of Jerusalem. The object is to provide funds for the operation of the Red Cross. Appeals have appeared in the press asking the public to bring all articles of rubber such as motor and cycle tires, hose, belting, clothing, hot water bottles, toys, etc., to certain central dumps established in large towns. The War Office has undertaken to purchase all of the rubber goods collected. If this is to be done on strict business lines I should say that it will require a super-expert to arrive at the market value of a dump.

### JAR-RING TESTS.

The article on this subject in the December issue of THE INDIA RUBBER WORLD was of great interest. It certainly seems that goods of this sort should be sold with a guaranty that they are fit for the purpose intended if loss of money and disappointment in the household are not to result. Up to the last year or two the bottling of fruit had been carried out in only a few households, but the advent of peripatetic government lecturers explaining the process led, or was expected to lead, to its wide-

spread adoption. I say "was expected" because the business did not materialize to any extent. In the first year there was a shortage of glass bottles, and in the second season, owing to the large government calls on an attenuated fruit crop, there was practically nothing left for the public to bottle, and what fruit there was on the market was at almost prohibitive prices. As the fortunate recipient of some bottled fruit from the country, I have had an opportunity of examining the rubber rings which I found broke quite easily. Of course I do not say that there are no really good rings on the market, but it certainly seems desirable that only rings of a certain standard quality should be allowed to be put on the market.

#### THE WORDS "INDIA RUBBER" AS A TRADE-MARK IN THE ARGENTINE REPUBLIC.

By *Herbert Langner*.

THE recent action of the India Rubber, Gutta Percha and Telegraph Works Co., Limited (La Compañía de Talleres de Cacho, Gutta Percha y Telégrafos, Limitada), Buenos Aires, a branch of the company of the same name in Silvertown, England, in filing an application for the registration of the words "India Rubber" as its trade-mark in Argentina to cover india rubber and gutta percha, either in a raw state or as a manufactured product, will undoubtedly be of considerable interest to all manufacturers and exporters of rubber goods in the United States of America, not only for the reason that if this trade-mark is granted it will create a monopoly in its use by the India Rubber, Gutta Percha and Telegraph Works Co., Limited, and preclude anyone else from using it in the Argentine Republic; also, anyone using it, whether accidentally or otherwise, would be liable a year's imprisonment, a fine of \$500, and confiscation of all goods bearing the mark.

The effects of such a registration upon shipments of india rubber products from this country to Argentina are apparent. Every domestic manufacturer would have to avoid marking his goods with the words "India Rubber" and abstain from these words in describing his goods, so as not to infringe this trade-mark.

It is therefore easily seen that should the Argentine Trademark Office countenance this application, as seems to be the case, it may work a great hardship to American concerns doing business in Argentina and who may have described their products as made of india rubber.

The question naturally arises: Is anyone entitled to register as a trade-mark in Argentina an expression in common use in the English language? Can words like "Gum arabic," "Portland Cement," "Russia Leather," "Virginia Tobacco," "French Chalk," "Holland Gin," etc., all of which are common descriptive words, be considered registerable trademarks in that country? This is apparently answered by a decision of the Argentine Federal Courts in an action brought by Borden's Condensed Milk Co. against Horlick's Food Co. on the question of the validity of the registration of the trade-mark "Malted Milk" in Argentina. The evidence showed that this product was made in large quantities in the United States of America, and that since "Malted Milk" was the descriptive name of a well-known product and indicated an article of a certain class, it did not constitute a good trade-mark, notwithstanding the fact that "Malted Milk" was an expression foreign to the Spanish language. If "Malted Milk" cannot properly be registered, then it would seem that "India Rubber" should not be registered, for the same reason.

The Argentine trade-mark law under which the present attempt to appropriate the mark "India Rubber" is being made, would, to the American mind, appear to be at fault, although a reference to the law defining what is registerable as a trade-mark in Argentina can leave no doubt that the words in question are not registerable. Article 3 of this law distinctly states

that terms or expressions which are in general use, and designations usually employed to indicate the nature of the article, or the class to which they belong, cannot be considered trade-marks. It would therefore seem that the interpretation of the law by the Argentine officials, rather than the law itself, is at fault, and that the present application to register "India Rubber" should not have been entertained by the Trade-mark Office. The application was advertised in the Argentine Official Journal, according to the Argentine law, for the purpose of bringing the mark to the notice of parties likely to be injured by its registration, and an opposition has been entered by a well-known American manufacturer



THE "SILVERTOWN" FACTORY IN BUENOS AIRES.

of rubber products, who contests the right of the British concern to secure a monopoly on these words. Its action in so doing, if successful, may be of benefit to the entire American industry and particularly to concerns exporting to Argentina.

#### SAMPLE FAIRS AT LYONS AND BORDEAUX.

The sample fairs to be held in Lyons and Bordeaux, in March and May, respectively, offer to American manufacturers an opportunity to become better acquainted with the products of France and its colonies as well as for the sale of American-made goods in those quarters.

It is suggested that it would be particularly advantageous for the American exhibitor to arrange to have his display transferred from Lyons to Bordeaux. The New York agent of the Lyons fair is Emil Garden, 21 Park Row, New York City. All exhibits for the Lyons fair must leave New York before February 5.

At the Lyons fair in 1918 there were more than 500 American exhibitors out of a total number of more than 3,000, and it was planned to erect a \$70,000,000 palace to house it in future.

As a result of the effort being made to increase the importance of Bordeaux as a transshipping port for the colonies of western and northern Africa, the predominating exhibits at the Bordeaux fair will be of colonial products, including rubber, oils and oil seeds, graphite from Madagascar, forestry products, etc. There will also be exhibits of chemicals and other products of the soil.

The Third Sample Fair held at Lyons in 1918, was a great success, but as none was held at Bordeaux last year, the coming exhibition there will be the Third Bordeaux Sample Fair. Prospective American exhibitors should communicate at once with the Comité d'Organization et Administration de la Foire de Bordeaux, Hotel de Ville, Bordeaux, France, relative to securing space, and with the steamship companies concerning transportation accommodations, as the Bordeaux fair has no official representative in this country as far as known.

## The Future of the Antwerp Rubber Market.

FOR four years, Antwerp, one of the world's great transit rubber markets, has been closed and its rubber trade completely wiped out. What will be its future now that the commerce of this port may be resumed?

Certainly business will return but slowly at best, for most former patrons have found other satisfactory sources of supply, and Belgian brokers will have to reestablish themselves from the ground up, so to speak. Lack of adequate ship tonnage will for a time be a great drawback. Moreover, economic forces altering the whole trend of the rubber trade have been set in motion by the war. Direct dealing between producing and consuming countries has become the rule, and to a considerable degree will continue. While this grew out of necessity, the results have shown that any transit market is, in principle, expensive and unnecessary, and the keen foreign trade competition likely to develop in the near future will tend toward a policy of eliminating all possible overhead charges.

In 1913 the total Belgian imports, mostly through the port of Antwerp, amounted to 32,438,360 pounds, the principal sources in pounds being as follows: Belgian Congo, 8,690,647; Great Britain, 6,676,314; Ceylon, 5,253,833; Netherlands, 2,993,538; Germany, 2,303,611; France, 2,087,644; Straits Settlements, 1,110,817.

Total exports for that year amounted to 24,400,770 pounds, indicating that only 8,037,590 pounds, or about one-fourth of the total imports, either were retained for use or remained in stock. The principal destinations of the exports in pounds were as follows: United States, 6,104,316; Germany, 5,944,162; Russia, 4,600,961; Netherlands, 2,586,973; France, 2,327,131; Great Britain, 1,578,819.

For three years prior to the war, Belgian crude rubber imports from Great Britain, Ceylon, Netherlands, Germany, and Straits Settlements had shown a steady increase, whereas imports from France had undergone a corresponding decrease, and those from Belgian Congo in 1913 were 1,275,954 pounds less than in 1912. Crude rubber exports from Belgium to the United States, Germany, Russia, and Netherlands for the

three years prior to the war had shown a steady increase, whereas exports to Great Britain had undergone a steady decrease, and those to France had maintained an approximate average. But many of these tendencies seem unlikely to continue.

The bulk of Belgian Congo rubber will doubtless go to Antwerp as in the past, but this rubber is derived chiefly from wild sources and has been diminishing rapidly. Great Britain, Ceylon, and Straits Settlements are successfully marketing their rubber to consuming countries and will continue to do so very largely, or through London, so that Belgian imports from these sources will in future correspond more nearly to the manufacturing needs of the country than hitherto. Germany no longer has African colonies producing rubber, and with a limited merchant marine following a complete rubber denudation will have little, if any, for re-export. Moreover, German interests are said to have contracted for a portion of the output of the Dutch East Indies, doubtless to be shipped direct or through Rotterdam, so that little of this rubber will reach Belgium through the Netherlands.

Germany will naturally prefer at first to deal with neutrals so far as possible, and Belgium, which has been one of the chief sufferers at the hands of the Hun, will prefer to have it so, notwithstanding commercial considerations that might sway other nations more remote from the tragedies of the war. This means that Belgian rubber exports to Germany, which were more than double the rubber imports from Germany, will be relatively small for some years if a satisfactory market can be found elsewhere, and it probably can. The United States, Belgium's best former customer, has found direct shipments from the East so satisfactory that she will hardly go to Belgium for any consider-



EXAMINING RUBBER AT THE ANTWERP MARKET.



RECEIVING RUBBER AT ANTWERP.

erable quantity of rubber hereafter. Russia is still in too great a state of chaos to become an extensive early buyer, while such a quantity and variety of rubber is grown under the British flag that England will have little need to resort to Belgian sources. The likelihood of a resumption of former trade with France and the Netherlands is more hopeful, however.

All indications point to the conclusion that, although Antwerp will again take its place among the important rubber markets of the world, it will not soon attain the position it formerly held as a crude rubber mart.

#### REGULATIONS GOVERNING SINGAPORE STANDARD RUBBER QUALITIES.

THE Singapore Chamber of Commerce Rubber Association publishes in the "Straits Budget" of December 6, 1918, the regulations now governing Singapore standard rubber qualities.

The committee will consist of six members to meet twice weekly to examine all guaranteed samples submitted to them and establishing whether they are found to be: Singapore standard first latex crêpe or Singapore standard f.a.q. ribbed smoke sheets.

At any meeting a quorum shall consist of not less than three members.

The place of meeting is the board room of the Singapore Chamber of Commerce Rubber Association, at 11 a. m., on Tuesdays and Fridays. Sellers wishing to place samples before the committee for award, must have their samples at the board room, Chartered Bank Chambers (top floor), between the hours of 8.30 a. m. and 9.30 a. m. on these days. All samples submitted to be sealed and carefully checked by the sellers.

The committee shall have power to approve a sample notwithstanding an earlier refusal to issue an award, and shall also have power to cancel any award issued, should it be found necessary. In the event of an award being cancelled after the rubber has been tendered to the buyer, the seller may be called upon by the committee to replace the bulk with approved quality within three clear working days of notice of cancellation.

For such lots as are presented to the Standard Qualities Committee for award, a fee of \$5 per sample representing 10 tons or any part thereof shall be paid to the Singapore Chamber of Commerce Rubber Association, such fees to be paid at the time samples are submitted.

Only members of the Singapore Chamber of Commerce Rubber Association may submit lots for award, and written "Application for Award" forms in duplicate must accompany samples, stating details.

The individual members of the standard qualities committee shall receive such remuneration as shall be decided upon by the committee of the Singapore Chamber of Commerce Rubber Association.

On samples which have passed the Standard Qualities Committee, the secretaries will issue an award form (numbered consecutively), stating full particulars as to marks, etc. This award to be signed by the secretaries and handed to sellers. On such samples which are submitted for award, details of the bulk must be submitted on the label attached. After approval, the seal of the committee shall be affixed, with award number, by the secretaries.

In the event of any parcel or parcels of standard quality being sold for delivery during a specified month, samples representing the said parcel or parcels shall be submitted to the Standard Qualities Committee not later than four clear working days before the end of the month of delivery.

It shall be the desire of the Standard Qualities Committee to establish a standard of quality which may represent the bulk of the crop of No. 1 qualities, but the committee shall have power to vary their decision in accordance with ruling conditions. Lots of a mixed character (from various estates) bulked into one parcel shall not constitute standard quality.

First latex crêpe shall be well prepared dry rubber of good quality, of even color, and free from all stains, spots, or traces of oxidization.

F.a.q. ribbed smoked sheet shall be clean, tough rubber, free

from mold, dampness under or over-smoked sheets. Slight traces of air-bubbles may be allowed, but at the discretion of the Standard Qualities Committee.

All rubber sold as standard quality must be certified by the Standard Qualities Committees before tender, and sellers must be in a position to deliver the rubber at the time the tender is made. Tender forms must show the number and date of award, which award shall remain in force for a period of one month from the date of issue, and tenders must also show the reference number and name of original seller or original selling broker.

In no case will a seller be permitted to make first tender against a contract sold for delivery during a specified month any later than three working days before the end of the month of delivery.

No addition can be made to a tender, and if any party finds it necessary to split a quantity tendered, new tender forms must be made out, which forms must bear original particulars and state the name of the party who split the tender.

All tenders to be made on official forms, which are obtainable from the association. Each party to endorse the time of receipt on the form, and if the tender is intended for circulation, same must be passed on as promptly as possible and not later than one business hour after receipt. Business hours shall not include the period between 1 p. m. and 2 p. m. or after 4.30 p. m. on week days, and 12.30 p. m. on Saturdays.

Last buyer shall make application to the first seller for delivery within 24 hours of receipt of tender. The rubber to be delivered to the last buyer within 48 hours from the time of the receipt of this application.

Before delivery, the buyer shall deposit with the first seller 90 per cent of the estimated value of the rubber or approved banker's guarantee. When final weights are known, invoices and account sales must be promptly rendered and settled, upon which settlement first seller shall refund to last buyer any deposit which may have been made.

Samples of awarded lots tendered on contracts must be available for inspection in the secretary's sample room, at Exchange Buildings, at the time tender is made, and shall not be removed by other than last buyer who must collect same and weigh in with bulk at time of weighing.

All official tender forms shall be accompanied by seller's memorandum of tender which must state: date of contract, quantity sold, description, delivery, price, tender number and weight tendered, first seller's reference number.

#### TAPPING AREA AND PRODUCTION IN MALAY PENINSULA AND BRITISH NORTH BORNEO.

The area of rubber tapping in the Federated Malay States, in 1917, was 518,109 acres, 408,574 acres of which were in estates of 100 acres and over and 109,535 acres in estates of less than 100 acres, according to the "Agricultural Bulletin of the Federated Malay States." As the output for the Federated Malay States for 1917 was 79,831 tons, this represents an average annual yield of 345 pounds to the acre. If the yield is reduced to 200 pounds per acre, the total output would be 46,000 tons.

Johore exported 19,061 tons of rubber in 1917. The area in tapping was 117,000 acres, which means 361 pounds to the acre. In Kedah, 45,000 acres were tapped, 258 pounds to the acre. The output of Kelantan, for between 13,500 and 15,000 acres, was 1,490 tons; the yield for 1917 was, therefore, either 247 or 222 pounds per acre. The area under tapping in Malacca was estimated by the Resident to be 180,000 acres, with 120,000 acres in tapping, a yield of 300 pounds to the acre. In Penang, the area in tapping was 32,289 acres, or 273 pounds to the acre. In British North Borneo, the area under rubber was 34,828 acres, of which 21,400 acres were in full tapping; the output was 2,444 tons, 256 pounds per acre.

## Recent Patents Relating to Rubber.

### THE UNITED STATES.

ISSUED NOVEMBER 5, 1918.

- N**o. 1,285,461. Expansible annular packing. G. Berggren, Brooklyn, N. Y.  
 1,283,468. Two-part rubber heel. W. H. Clarke, Akron, O.  
 1,283,520. Wheel rim for pneumatic tires. H. H. Huffman, Columbus, Ohio.  
 1,283,753. Tire gage. R. Hazeltine, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.  
 1,283,853. Demountable rim for tires. A. Mentzer, Duluth, Minn.  
 1,283,860. Fountain-pen cap and clip. O. Mitchell, Brookline, assignor to Moore Pen Co., Boston—both in Mass.  
 1,283,874. Resilient tire. J. L. Ogdan, Chicago, Ill.  
 1,283,944. Fountain pen. W. A. Staffeldt, Reading, Mich.  
 1,283,953. Hose-supporter clasp. H. J. Stuart, Derby, assignor to Robert N. Bassett Co., Inc., Shelton—both in Conn.  
 1,283,954. Hose-supporter button-clasp. H. J. Stuart, Derby, assignor to Robert N. Bassett Co., Inc., Shelton—both in Conn.  
 1,283,955. Hose-supporter button-clasp. H. J. Stuart, Derby, assignor to Robert N. Bassett Co., Inc., Shelton—both in Conn.  
 1,284,014. Turn sole with forepart of rubber compound with fibrous stitching-receiving element for single-faced stitches, etc. S. W. Winslow, Jr., Beverly, assignor to United Shoe Machinery Corp., Paterson, N. J.  
 1,284,178. Swimming web for the hand. J. A. Clarke, assignor of one-half to J. Zarafonetis—both of Vincennes, Ind.

ISSUED NOVEMBER 12, 1918.

- 1,284,229. Demountable split rim for tires. J. A. Brown, Chicago, Ill.  
 1,284,232. Wind-shield cleaner. W. J. Burke, San Francisco, Calif.  
 1,284,396. Breast pump. J. F. McCleary, Findlay, O.  
 1,284,429. Puncture-proof material composed of metal plates coated with hard rubber and encased in soft rubber cushion. C. S. G. Nichols, Kansas City, Mo.  
 1,284,466. Resilient tire. T. Salari, Bisbee, Ariz.  
 1,284,525. Fountain pen. R. T. Wing, St. Cloud, Minn.  
 1,284,530. Pneumatic support for vehicles. W. G. Wood, Sacramento, Calif.  
 1,284,536. Double-cuffed sleeve-protector with elastic cord at wrist of inside cuff. B. J. Yaeger, Minneapolis, Minn.  
 1,284,632. Suspensory jock-strap. R. C. Fine, Los Angeles, Calif.  
 1,284,633. Demountable rim for solid tires. W. R. Finlay, San Francisco, Calif.  
 1,284,832. Metal and rubber tire. J. B. Wallace, Mukwonago, Wis.

ISSUED NOVEMBER 19, 1918.

- 1,284,970. Motor-wheel with rubber tire. O. A. Anderson, Highland Park, Mich.  
 1,284,995. Rubber heel with friction plug. F. Berenstein, Chelsea, Mass.  
 1,285,012. Electric cable. C. P. Brodun, assignor to Hazard Manufacturing Co.—both of Wilkes-Barre, Pa.  
 1,285,027. Garter. Daniel G. Butts, assignor to Ivory Garter Co.—both of New Orleans, La.  
 1,285,084. Rubber tire, with carcass composed of woven vegetable fabric and asbestos cloth, vulcanized together. R. J. Evans, Franklin, Pa.  
 1,285,103. Demountable rim for tires. W. H. Fox, assignor of one-half to Bernard W. Japs—both of Minneapolis, Minn.  
 1,285,296. Fountain pen. J. H. Marsh, New York City.  
 1,285,325. Belt composed of non-elastic and elastic elements. I. Nelson, Eagle Grove, Ia.  
 1,285,391. Pneumatic mattress. C. R. Robertson, assignor of one-half to O. J. Devaney—both of Columbus, O.  
 1,285,405. Double garment, with valves for admitting and emitting fluid such as hot water, for treatment of invalids. P. Sangoff, Worcester, Mass.  
 1,285,419. Cushion tire. M. Scrocco, New York City.  
 1,285,454. Tire insulator of asbestos cords woven around core of rubber, for insertion between inner pneumatic tube and outer shoe, or in body of outer shoe, of pneumatic tire. J. W. Stinson, Garden City, N. Y.  
 1,285,481. Thigh reducer. M. V. Vincent, Brooklyn, N. Y.  
 1,285,507. Belt with elastic section, etc., for supporting artificial limbs. S. H. Waterman, Seattle, Wash.

ISSUED NOVEMBER 26, 1918.

- 1,285,604. Inner-tube protector for pneumatic tires. H. S. Blynt, Galilipoli, O.  
 1,285,605. Resilient tire. A. Boerner, Scheveningen, Netherlands.  
 1,285,618. Pneumatic wheel with rubber tire. J. A. Carter, St. Louis, Mo.  
 1,285,719. Air-tube for pneumatic tire. I. B. Jeffries, Llanelli, Wales.  
 1,285,722. Pneumatic tire with metallic casing. E. A. Jones, Los Angeles, Calif., assignor to Jones Holding Syndicate, Seattle, Wash.  
 1,285,730. Vehicle tire. A. H. Keller, Philadelphia, Pa.  
 1,285,734. Fountain-pen cap and clip. J. W. Kessel, Brooklyn, N. Y.  
 1,285,741. Diver's suit. P. Konopaski, Lovering Camp, Ont.  
 1,285,757. Demountable rim for tires. S. R. McKay, assignor to The McKay Co.—both of Cleveland, O.  
 1,285,818. Balloon cycle. J. Skrobacz, Olean, N. Y.  
 1,285,871. Artificial foot. C. B. Winn, Buffalo, N. Y.  
 1,285,877. Golf ball. G. C. Worthington and W. E. Reichard, assignors to Worthington Ball Co.—all of Elyria, O. (Original application divided.)  
 1,285,878. Golf ball. G. C. Wentworth, Elyria, O.  
 1,285,891. Paving block of reinforced rubber for roadways, etc. G. Anderson, London, England.  
 1,285,944. Cushion wheel. H. B. Coats, Veedersburg, Ind.  
 1,285,993. Auxiliary tread for pneumatic tires. C. A. Hartfiel, New Haven, assignor of one-third to F. J. Euerle, Hamden, and one-third to L. Arctander, East Haven—all in Conn.  
 1,285,994. Tire protector. P. L. Harvey, Des Moines, Iowa.

- 1,286,030. Reinforced hard-rubber structure. E. J. Kroeger, Akron, O., assignor to The B. F. Goodrich Co., New York City.  
 1,286,081. Golf ball. W. Pearce, Akron, O., assignor to The B. F. Goodrich Co., New York City.  
 1,286,107. Tire-forming tube of reinforced rubber. I. R. Renner, Akron, O., assignor to The B. F. Goodrich Co., New York City. (Original application divided.)  
 1,286,121. Armored tire casing. W. H. Sampson, Grand Island, Neb.  
 1,286,133. Liquid-dispensing bottle-stopper. Theodore J. Snyder, assignor of one-fourth each to George S. Jacobs and Meyer H. Eichenbaum—all of Chicago, Ill. (Continuation of application Serial No. 97,811, filed May 16, 1916. Renewed August 28, 1917, Serial No. 188,695. This application filed February 14, 1918. Serial No. 217,047.)  
 1,286,163. Demountable rim for tires. E. C. Walters, Akron, O.  
 1,286,169. Resilient heel. B. W. Brockett, Cleveland, O.  
 1,286,173. Demountable rim for tires. O. E. Edstrom, Oakland, assignor to Rapid Remountable Rim Co., San Francisco—both in Calif.  
 1,286,176. Sole for turn shoes, consisting of rubber body and fibrous edges to permit stitching. G. Ferguson, Wollaston, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.

ISSUED DECEMBER 3, 1918.

- 1,286,198. Combination legging with resilient foundation. J. Ascheim, Cedarhurst, N. Y. (Original application divided.)  
 1,286,206. Wheel rim for pneumatic tires. E. S. Beeman, assignor of one-half to W. F. Pusch—both of La Porte, Ind.  
 1,286,307. Elastic wheel with pneumatic pad between inner rim and hub. S. C. Hatfield, Baltimore, Md.  
 1,286,348. Resilient wheel with pneumatic tube around hub. J. A. Kolby, J. P. Larsen and C. P. Nielsen, assignors to Kolby Wheel Co.—all of Ephraim, Utah.  
 1,286,396. Boxing glove with sponge-rubber filling or padding. Z. G. Oldham, Los Angeles, Calif.  
 1,286,437. Toy firearm operated by elastic bands. E. F. Slear, Collingswood, N. J.  
 1,286,524. Wheel rim for pneumatic tires. E. W. Bryan, Valdosta, Ga.  
 1,286,579. Ballonet inflator. J. R. Gammeter, Akron, O., assignor to The B. F. Goodrich Co., New York City.  
 1,286,594. Wind-shield cleaner. M. Iriye, Los Angeles, Calif.  
 1,286,655. Resilient wheel with pneumatic tube around hub. J. Krizek, assignor of one-third each to P. Kitchen and J. I. Piscek—all of Gallup, N. M.  
 1,286,777. Fountain pen. J. M. Reynolds, Montrose, Colo.  
 1,286,786. Wheel rim for automobile tires. R. B. Robinson, Kansas City, Mo.  
 1,286,798. Garment-wheel with elastic element to provide for expanding. L. J. Schimman, New York City.  
 1,286,834. Golf ball. W. Taylor, Leicester, England.

### THE UNITED KINGDOM.

ISSUED DECEMBER 11, 1918.

- 119,699. Truss with rubber pad. A. W. Lewis, 130 Commercial street, Monmouthshire.  
 119,746. Hypodermic syringe with rubber piston. J. D. Marshall, 25 Chalfont Court, Regent's Park, London.  
 119,752. Folding portable bath of waterproof sheeting, etc. J. L. McCrea, 13 Canadian General Hospital, Ore, Hastings, Sussex.  
 119,757. Doll with rubber hands and feet. L. Wilks, Dunnington, Great Woodcote Park, Purley, Surrey.  
 119,760. Chest expanders, corsets and abdominal belts having elastic inserts. A. Berger, 34 Trevor Square, Brompton Road, London.  
 119,771. Doll having head, limbs, etc., jointed to body by elastic cords. C. E. Green, 49 Hatton Garden, London.  
 119,812. Artificial leg with cushioning pad of rubber on front of foot. G. de C. Catellani, 21 Via del Quirinale, Rome, Italy.  
 119,838. Reinforced tire. W. J. Varner, Athens, Georgia, U. S. A.  
 119,866. Life-saving suit. J. E. Lepage, 189 St. James' street, Montreal, Canada. (Not yet accepted.)  
 119,900. Pneumatic wheel with rubber tire. J. K. Marshall, Alderlands, Esher, Surrey.

ISSUED DECEMBER 18, 1918.

- 120,004. Rubber-coated wire stringing for tennis rackets, snow-shoes, etc. S. G. Lewis, Greensburg, Pa., U. S. A.  
 120,077. Resilient cushion wheel. A. L. W. Begg, 1482 Broadway, New York City, U. S. A.  
 120,088. Gas bag for motor vehicles. R. Russell, The Acres, Middleton, near Manchester.

### THE DOMINION OF CANADA.

PUBLISHED OCTOBER 31, 1918.

- 186,797. Calked elastic shoe-plate. S. A. Moore, Medford, Ore., U. S. A.  
 186,811. Life-saving garment. M. P. Vukasav, West Oakland, Calif., U. S. A.  
 186,821. Anti-skidding tire-tread. The Dunlop Rubber Co., Limited, London, assignee of C. Macbeth, Birmingham—both in England.  
 186,922. Teat-cups for milking machine. The Perfection Manufacturing Co., assignee of L. Dinesen—both of Minneapolis, Minn., U. S. A.  
 186,967. Covered rubber hose with compressible fillet between hose and cover. H. W. Goodall, Philadelphia, Pa., U. S. A.  
 186,974. Pneumatic cushion tire. L. Hofmeister, Milwaukee, Wis., U. S. A.  
 186,986. Tennis racket with rubber-coated stringing. S. G. Lewis, Greensburg, Pa., U. S. A.  
 186,997. Cushion tire. I. I. McLeod, née Gresham, Lakeland, Fla., U. S. A.

- 187,038. Reinforced tire casing. The Burdick Tire & Rubber Co., assignee of A. S. Burdick and J. C. Hermann—all of Chicago, Ill., U. S. A.
- 187,039. Hose with expandible inside tube. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of W. T. Cole, Newton, Conn., U. S. A.
- 187,070. Pneumatic cushion wheel. E. G. Gallagher and A. Schadee, assignee of one-third interest—both of New York City, U. S. A.
- 187,138. Resilient tire. H. A. Naylor, Valparaiso, Chile, S. A.
- 187,159. Armored inner tube for pneumatic tires. L. Wenzel, Jr., Pittsburgh, Pa., U. S. A.
- 187,171. Hand tool for applying rubber and liner strips. The Canadian Consolidated Rubber Co., Limited, Montreal, Que., assignee of J. Rettell, Detroit, Mich., U. S. A.
- 187,179. Inner liner for pneumatic tires. S. T. Davis, Pittsburgh, and J. S. Demetrian, assignee of one-half interest, Clairton—both in Pa., U. S. A.
- 187,181. Demountable rim for tires. L. M. Cooper and H. McConnel, assignee of one-half interest—both of Detroit, Mich., U. S. A.
- 187,199. Vacuum bottle with rubber tube for conveying live and condensed steam to and from body-engaging cup. A. F. Daniel, Commerce, Okla., U. S. A.

## NEW ZEALAND.

ISSUED NOVEMBER 14, 1918.

- 39,995. Tire casing. J. H. Gill and J. D. Rea—both of High street, Dunedin, N. Z. (Cognate with No. 40,083.)
- 40,083. Tire casing. (See No. 39,995.)
- 40,250. Automobile fender with inflated cushion on fender-bar. F. F. Benson, Chinook, Blaine, Montana, U. S. A.

## AUSTRALIA.

ISSUED OCTOBER 1, 1918, TO AMERICANS.

- 6,038. Ventilating garment seam having edges protected with rubber linings and secured by fabric strip and adhesive covering strips. C. B. Shane, 222 West Monroe street, Chicago, Ill., U. S. A.

## TRADE MARKS.

## THE UNITED STATES.

- N**o. 98,760. Representation of black oval with inner line of white, bearing representation of garter-clasp and the words NU-WAY—garters. G. Abraham, New York City, assignor to E. Abraham, trading under firm name of Nu Way Garter Co.
- 106,127. The word NEPTUNE—insulated wire. Atlantic Insulated Wire & Cable Co., Jersey City, N. J.
- 107,894. The word SATURN—stylographic and fountain pens, etc. Hinks, Wells & Co., Birmingham, Eng.
- 108,681. The word CHICAGO—pneumatic rubber tires, inner tubes and tire-repair kits. Chicago Cycle Supply Co., Chicago, Ill.
- 109,025. The word DURAL—inner tubes for vehicle tires. Rural Rubber Corp., Flemington, N. J.
- 109,171. The word ONYX above figure of a man adjusting garter, outlined against background of garter in colossus—men's garters. Eagle Garter Co., New York City.
- 110,123. The word N-DUREX underlined—rubber composition soles for boots and shoes. Thos. H. Logan Co., Hudson, Mass.
- 110,304. The word RECORD—rubber tires. The National Tire & Rubber Co., East Palestine, O.
- 110,842. Representation of blue circle containing letter S printed in red at upper and lower ends and white in middle, with the letters O and X printed in red in upper and lower curved portions of the S—men's garters. John Hoban, Ottawa, Ill.
- 111,213. The word CARIGRAIN—conveyor belts made of rubber reinforced with fabric. B. F. Goodrich Co., New York City.
- 111,293. Representation in silhouette of Ajax rolling a tire—pneumatic tire accessories, namely, talc, combination-gum, combination tube-gum, cushion-gum and tread-gum. Ajax Rubber Co., Inc., Millbrook, N. Y.
- 111,321. The word PARAKNIT—girdle corsets, hose supporters, abdominal supporters, hip confiners, etc. Treo Co., Inc., New York City.
- 112,155. The word UNIVERSAL—rubber soles and heels. Woodbury Shoe Co., Beverly, Mass.
- 112,438. Representation of the sole of a foot, with shoe outline drawn around it, bearing the words HANAN'S NATURALAST, REGISTERED—leather, cloth, and rubber boots, shoes, and slippers. Hanan & Sons, Brooklyn, N. Y.
- 112,480. The word LIBERTY—rubber heels. C. C. Stolzenburg, Elyria, O.
- 112,830. The word FILENE'S—bathing caps made of rubber, raincoats and capes made of rubber, etc. Wm. Filene's Sons Co., Boston, Mass.
- 112,929. The word AMPERE—canvas stitched belting. Victor Balata & Textile Belting Co., Easton, Pa.
- 113,054. Silhouette of Ajax rolling a tire—rubberized or frictioned fabric. Ajax Rubber Co., Inc., Millbrook, N. Y.
- 113,065. The word ARCADIA—rubber hose, pneumatic tires, inner tubes, and rubber belting. New Jersey Car Spring & Rubber Co., Inc., Jersey City, N. J.
- 113,336. Representation of a double-outlined oval enclosing the letters T, R, and C—rubber heels. Taunton Rubber Co., Inc., Taunton, Mass.
- 113,617. The word LIBERTY—boots and shoes of leather, canvas or fabric. W. H. McElwain Co., Boston, Mass.

## THE DOMINION OF CANADA.

- 23,920. The words LIGHTNING TREAD and the representation of a streak of lightning—automobile tires of rubber and fabric. Carlisle Cord Tire Co., Inc., New York City, U. S. A.
- 23,921. Representation of three-leaved clover; each leaf enclosing representation of flat-iron—seals, presses and stamps wholly or partially of metal or rubber or both. E. McK. Irons, Toronto, Ont.
- 23,944. The words WING Foot and the representation of a winged foot—goods wholly or partially of rubber or balata, including solid tires, pneumatic tires and tubes, hose, belting, packing, molded goods, tubing, and tire accessories. The Goodyear Tire & Rubber Co. of Canada, Limited, Toronto, Ont.
- 23,949. The letters B. B. C.—non-metallic vehicle tires and tubes. The Brunswick-Balke-Collender Co., Chicago, Ill., U. S. A.

- 23,959. The word SAMSON—all kinds of dental appliances. A. L. Larose, Montreal, Que.

THE UNITED KINGDOM.  
TO AMERICANS.

- 382,169. The words PENNSYLVANIA VACUUM CUP preceded and followed by the letters V and C forming a monogram—rubber tires. Pennsylvania Rubber Co., Jeannette, Pa., U. S. A. (Care of McKenna & Co., 31-34 Basinghall street, London, E. C. 2.)
- 385,316. The word VAC—rubber boots and shoes, and boots and shoes principally of rubber and partially of wool, cotton, linen or silk. Mishawaka Woolen Manufacturing Co., Hill and Water streets, Mishawaka, Ind., U. S. A. (Care of Marks & Clerk, 57-58 Lincoln's Inn Fields, London, W. C. 2.)

AUSTRALIA.  
TO AMERICANS.

- 22,433. The words MME. LEEMAX in fancy script lettering—sanitary goods and appliances of all kinds included in Class 11. A. Stein & Co., 1149 West Congress street, Chicago, Ill., U. S. A.

## DESIGNS.

## THE UNITED STATES.

- N**o. 52,630. Ankleguard for shoes. Patented November 12, 1918. Term 14 years. E. S. Bott, assignor to La Crosse Rubber Mills—both of La Crosse, Wis.
- 52,650. Tire. Patented November 12, 1918. Term 14 years. J. E. Hale, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
- 52,686. Tire casing. Patented November 12, 1918. Term 14 years. O. L. Weaver, assignor to The Star Rubber Co.—both of Akron, O.
- 52,701. Tire. Patented November 19, 1918. Term 14 years. J. E. Hale, assignor to The Goodyear Tire & Rubber Co.—both of Akron, O.
- 52,702. Tire. Patented November 19, 1918. Term 3½ years. A. Kanzee, Berkeley, Calif.
- 52,703. Tire. Patented November 19, 1918. Term 14 years. A. Kanzee, Berkeley, Calif.



52,650 52,686 52,701 52,702 52,703 52,704

- 52,704. Tire. Patented November 19, 1918. Term 3½ years. A. Kanzee, Berkeley, Calif.
- 52,706. Golf ball. J. C. Robertson, assignor to St. Mungo Manufacturing Co.—both of Glasgow, Scotland.
- 52,712. Golf ball. A. Turner, assignor to North British Rubber Co.—both of Edinburgh, Scotland.

## THE DOMINION OF CANADA.

- 4,479. Tire. Patented October 5, 1918. Hercules Rubber Co., Limited, Inc., Brampton, Ont.
- 4,480. Tire. Patented October 5, 1918. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ont.
- 4,481. Tire. Patented October 5, 1918. Dunlop Tire & Rubber Goods Co., Limited, Toronto, Ont.

## A NEW VEGETABLE WAX.

Samples of wax gathered from the wax palm, known in Ecuador as the gualte, and samples of Mexican candelilla wax are being exhibited in San Francisco by the Bureau of Foreign and Domestic Commerce. Markets are sought for these two commodities. The candelilla wax is of light color and very hard with a high melting point. Purified, it will make the best quality of candles, lasting and giving a brilliant light. Dissolved in turpentine it makes excellent varnish, and it is also used in the manufacture of shoe polish, phonograph records, electric insulation, as a substitute for beeswax, etc.

## COMMERCIAL AGREEMENT BETWEEN FINLAND AND SWEDEN.

Rubber and products thereof purchased in Sweden by Finnish buyers must now be paid for in goods up to 100 per cent. of their value, as rubber is merchandise in Class 1, which is that of the highest value. For goods in Class 2, Finland must pay Sweden 60 per cent. in merchandise and the balance in cash. For articles in Class 3, payment must be made 20 per cent. in goods and the balance in Finnish money; and several other countries seem to be contemplating similar arrangements to make international trade possible.

## Crude Rubber During 1918.

THE YEAR opened with a slight upward tendency which, however, was not maintained. There was so little spot rubber on the market that the demand fell off. Then came the railroad congestion, with the resulting embargoes, and the government order shutting down factories. Toward the end of January accumulations of rubber began pulling up at Pacific ports owing to the breakdown of the transcontinental freight service. On January 29, first latex, spot, was 55 cents, and upriver fine, spot, 58 cents.

During February manufacturing interest was entirely lacking and dealers showed no desire at all to accumulate supplies, so that all activity ceased. The railroads resumed, under unprecedented difficulties, the eastward movement of rubber from the Coast. The President's proclamation licensing all imports, including crude rubber, resulted in a firm undertone. Quotations on February 26 were: first latex crêpe, spot, 55½ cents, and upriver fine, spot, 57 cents.

Dullness characterized the market during the first half of March, but in the third week it began to be feared that arrivals at Pacific ports would be greatly reduced owing to the taking over of the Dutch ships. Importers and manufacturers, therefore, came into the market with good-sized orders. Prices accordingly advanced and remained at the higher levels even after the demands were satisfied, as buyers were showing an interest in forward positions. On March 28 first latex crêpe, spot, was 59 cents, and upriver, spot, 61 cents.

Very little business was done during the first three weeks of April, but a very heavy buying movement followed a meeting of a special rubber trade committee with the War Trade Board at Washington on April 18. This conference discussed the problem of rubber imports in connection with the ever-increasing demands for shipping to and from Europe. What was said at the meeting did not transpire, but manufacturers and shorts participated in sending prices up sharply in an excited market. First latex crêpe, spot, reached 71 cents, and upriver fine, 69 cents. By the last of the month latex was one cent lower, but upriver did not decline.

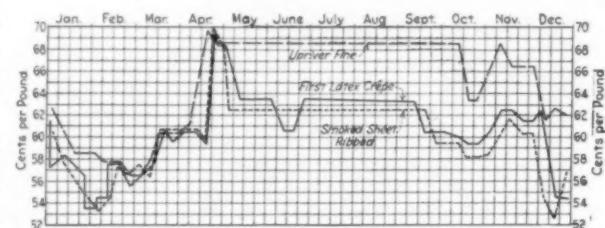
Government control of crude rubber importations became effective on May 1. Under the option and guaranty clause the Government optioned the standard grades of crude rubber at the following prices, c. i. f. New York: standard smoked sheet, 62 cents; first latex crêpe, 63 cents; fine Pará, 68 cents—these prices not to apply to rubber contracts in force prior to May 1, 1918. Imports for the three months beginning May 1 were limited to 25,000 tons, government requirements coming first, the balance to be allocated to each manufacturer at the rate of 7/16 of his consumption during 1917. Then the Government fixed prices for all other grades. All of these innovations were accepted by the rubber trade with equanimity.

The market was stagnant during the month of June. The large consumers had bought forward plantation rubber to the limit of their allocations. It is true that rubber free from the import restrictions was in continued demand, but the supply was soon exhausted. Later in the month maximum prices on jelutong, gutta siak, gutta percha and balata were fixed by the Government.

During July the market was virtually dead, partly under the influence of the three months' experimental restriction period, which began on May 1, and partly because of waiting to learn from Washington what regulations would be enforced for the balance of the year. Manufacturers' allocations had evidently been covered, for very few certificates appeared. Standard plantation grades for future shipment were quoted as low as 42 cents, New York. A few small lots of free rubber were sold by importers against similar quantities to be shipped against allocation certifi-

cates from stocks bought in the Far East prior to May 8, and for which no marketing provision had been made in the government regulations.

For August and September the Government decided to permit the importation of 16,666 tons of crude rubber, the needs of the United States and allied governments coming first, the balance being allocated to manufacturers at the rate of 3/8 of 1/6 of their consumption during 1917; manufacturers not operating at full capacity in 1917 to receive allocations according to a special formula. It was also ordered that the number of tire casings and tubes produced and the amount of rubber used during



FLUCTUATIONS OF UPRIVER FINE, FIRST LATEX CRÊPE AND SMOKED SHEET RIBBED SPOT RUBBER DURING 1918.

August and September should only be 50 per cent of the production and consumption during 1917. Pará were quoted at 60 to 61 cents for August-September shipment during the latter part of August, but the consuming demand was limited to small quantities for immediate requirements.

Quiet market conditions prevailed during September. Crude rubber imports were fixed at 25,000 tons for October, November and December, according to previous allocations. Toward the middle of the month considerable free rubber was offered by manufacturers who were overstocked, and sales were reported to have been made at prices ranging from 51 to 61 cents for crepe and 49½ to 60 cents for ribs. Trading in allocation certificates was an unusual feature of the market, and the Far East received attention from manufacturers, relieving the distress in that quarter to some extent.

The October market was extremely dull. Orders for allocated and free rubber were infrequent and unimportant in volume. Allocated rubber remained firm, latex ranging from 37 to 42 cents, and ribs from 35½ to 40 cents. Free rubber prices ranged from 58½ to 62 cents for latex and 57½ to 61 for ribs. Prices on allocated Pará grades varied but little; upriver fine, from 56 to 58 cents. The price on free rubber ranged from 62 to 66 cents for upriver fine.

For a brief period after November 11 the market condition improved, and the Government permitted the importation of 7,500 tons over and above the amount previously allowed for the period ending December 31. Allocated rubber was quoted on November 12 at 51 cents for latex and 49 cents for ribs. Free rubber prices on November 26 were: 60 cents for latex and 52 cents for ribs. At the same time, upriver fine was quoted at 66 to 68 cents.

During December quietness characterized the market. All restrictions as to the quantities of rubber that might be imported were removed. Import licenses were thenceforth to be granted regardless of quantities involved. Government option prices were withdrawn and undertakings as to maximum values were no longer required; the rubber, however, to be consigned to The Rubber Association and the usual guarantees required. Balata, gutta percha, gutta siak and jelutong are included in the term rubber as used in this paragraph. On December 26 first latex crêpe was 54 cents, and upriver fine, 61 cents.

## Review of the Crude Rubber Market.

### NEW YORK.

A COMATOSE market, with occasional slight signs of animation, is not what an optimist likes to review. We positively decline to join the ranks of the discouraged, however, as the needs of the world for rubber products are too great for the present apathy to continue very long. Whatever troubles rubber men may be facing they can at least be glad that the last government shackles were removed on January 20, when the War Trade Board announced that importations of crude rubber, jelutong, balata, gutta siak, gutta percha, scrap, and reclaimed rubber are no longer to be consigned to The Rubber Association of America, and also that importers of crude rubber are no longer under the necessity of cabling license numbers to their shippers.

Annual inventories of stocks have been claiming attention and machinery which had been used to the limit for war production is being repaired. Production of rubber goods must soon start, probably not with a rush, but sufficiently to enable us to register a steady monthly improvement from now on.

The Singapore Government has cancelled the compulsory regulations regarding baled rubber that required a minimum of 220 pounds for sheets and 165 pounds for crepe to be packed in five cubic feet.

PLANTATIONS.—On the 7th of January spot latex was 58 cents, January-February shipments 56 cents; spot ribs were 58 cents, January-February shipments 56 cents; spot No. 1 amber crepe was 55 cents, January-February shipments 50 cents; spot No. 1 brown crepe was 38 cents, January-February shipments 36 cents.

On January 27 spot latex was 52 cents, April-December shipments 49 cents; spot ribs were 51 cents, April-December shipments 47 cents; spot amber crepe was 47½ cents, April-December shipments 45 cents.

PARAS.—On January 7 spot upriver fine was 64½ cents, January-February shipments 60 cents; spot upriver coarse was 34½ to 35 cents; spot upper caucho ball was 35 cents, February-March shipments 34½ cents; spot cametá was 25 cents, February-March shipments 24 cents; spot islands coarse was 24 cents, February-March shipments 23 cents.

On January 27, spot upriver fine was 59½ cents; spot upriver coarse was 35½ cents, February-March shipments 35½ cents; upper caucho ball was 34 cents; spot islands coarse was 24 cents; spot cametá was 24 cents.

### NEW YORK QUOTATIONS.

Following are the New York spot quotations, one year ago, one month ago and on January 25, the current date:

PLANTATION HEVEA—	Feb. 1, 1918.	Jan. 1, 1919.	Jan. 25, 1919.
First latex crepe....	53 @	54 @	51½ @
*Hevea first crepe....			
Amber crepe No. 1...	48 @	48 @	49 @
Amber crepe No. 2...	47 @	47 @	48 @
Amber crepe No. 3...	46 @	46 @	47 @
Amber crepe No. 4...	45 @	45 @	46 @
Brown crepe, thick clean	44 @ 45	45 @	46 @
Brown crepe, thin clean	44 @ 45	45 @	46 @
Brown crepe, thin specky	42 @	40 @	40 @
Brown crepe, rolled...	38 @	35 @	33 @
Smoked sheet, ribbed standard quality....	54 @	52 @	50 @
*Hevea ribbed smoked sheets.....			
Smoked sheet, plain standard quality...	53 @	51 @	49 @
*Hevea plain or smooth smoked sheets			
Unsmoked sheet standard quality...	51 @	49 @	48 @
*Hevea unsmoked sheets.....			
Colombo scrap No. 1...	41 @	38 @	35 @
Colombo scrap, No. 2...	39 @	36 @	33 @

	Feb. 1, 1918.	Jan. 1, 1919.	Jan. 25, 1919.
<b>BRAZILIAN PARAS—</b>			
Upriver fine.....	58 @	61 @	58½ @
Upriver medium.....	52 @	55 @	53 @
Upriver coarse.....	38 @	35½ @	34½ @
Upriver weak fine....	40 @	51 @	45 @
Upper caucho ball....	37 @	35 @	33½ @
Islands fine.....	47 @	52 @	49 @
Islands medium.....	40 @	45 @	43 @
Islands coarse.....	24½ @	23½ @	22 @
Cametá.....	24½ @	24 @	22½ @
Lower caucho ball....	31½ @	34 @	32 @
Peruvian fine.....	53 @	**56 @	**56 @
Tapajos fine.....	53 @	57 @	55 @
<b>AFRICANS—</b>			
Niger flake, prime....	46 @ 47	28 @	25 @
paste.....	46 @ 47	24 @	**24 @
Benguela, extra No. 1 28%.....	29 @	**33 @	32 @
Benguela, No. 2, 32½% upper.....	28 @	**29 @	30 @
Congo prime, black upper.....	46 @ 47	**48 @	46 @
Congo prime, red upper Rio Nunez ball.....	46 @ 47	**55 @	**55 @
Rio Nunez sheets and strings.....	63 @	@	**55 @
Conakry niggers.....	63 @	**55 @	**55 @
Massai sheets and strings	63 @	**55 @	**55 @
<b>CENTRALS—</b>			
Corinto scrap.....	37 @	37 @	36 @
Esmeralda sausage.....	36 @	36 @	36 @
Central scrap.....	35 @	35½ @	36 @
Central scrap and strip, 75 per cent.....	33 @	33 @	33½ @
Central wet sheet, 25% Guayule, 20% guarantee Guayule, dry.....	25 @ 26	26 @ 27	24 @
<b>MANICOBAS—</b>			
Ceara negro heads.....	32 @	35 @	@
Ceara scrap.....	28 @	35 @	@
Manicoba (basis 30% loss washing and drying).....	41 @	@	40 @
Mangabeira thin sheet.....	40 @	@	38 @
<b>EAST INDIAN—</b>			
Assam crepe.....	37 @	36 @	37 @
Assam onions.....	45 @	44 @	44 @
Penang block scrap.....	38 @	38 @	37 @
<b>BALATA—</b>			
Block, Ciudad Bolivar, Colombia.....	72 @ 73	69 @ 71	72 @
Panama.....	55 @	58 @	60 @
Surinam sheet.....	51 @	57 @	56 @
Surinam sheet amber.....	86 @	93 @	88 @
88 @	95 @	90 @	
<b>PONTIANAK—</b>			
Banjermassin.....	13 @ 14	14½ @	13½ @
Palembang.....	18 @ 20	18½ @	16 @
pressed block.....	18 @	20 @	21 @
Sarawak.....	18 @	18 @	12 @
<b>GUTTA PERCHA—</b>			
Gutta Siale.....	20 @	23 @	24 @
Red Macassar.....	2.00 @ 3.00	2.90 @ 2.95	2.90 @ 3.00

\*Rubber Association of America nomenclature.

\*\*Nominal.

	RECLAIMED RUBBER.
New developments were lacking in the reclaimed rubber market during the past month. The inactivity on the part of the consuming trade is attributable to the hesitancy that dominates most industries in the period of reconstruction. The demand has been of a routine nature, but of sufficient volume to maintain prices that are unchanged from those quoted a month ago.	
<b>NEW YORK QUOTATIONS.</b>	
JANUARY 25, 1919.	
Subject to change without notice.	
Standard reclaims:	
Floating.....	.35 @ .40
Friction.....	.35 @ .40
Mechanical.....	.12 @ .13
Red.....	.20 @ .25
Shoe.....	.15 @ .15½
Tire, auto.....	.17½ @ .18½
truck.....	.13 @ .13½
White.....	.24 @ .25

## THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers, broker in crude rubber and commercial paper, No. 68 William street, New York, advises as follows:

During January there has been a fair demand for commercial paper, principally from out-of-town banks, the best rubber names going at 5½ to 6 per cent, and those not so well known 6 to 6½ per cent.

## MARKET CABLE SERVICE FROM SINGAPORE.

The following report of the auctions held at Singapore has been cabled by The Waterhouse Co., Limited:

Date. Crepe. Riba. Market.  
January 20 ..... cents 42.2 41 Uncertain.

Rates to Pacific Coast have been reduced to \$35 per cubic ton. Cargo space plentiful.

## WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [December 13, 1918]: At the weekly rubber auction held yesterday and today, demand was on a very limited scale, the manufacturing interests being practically out of the market. Prices of standard grades show only a slight weakening, but the state of market may be judged from the fact that only 638 tons were sold out of 1,567 tons catalogued.

Ribbed smoked sheet was difficult of sale, and the top prices of 72½ cents is 1 cent below last week's best. Fine pale crepe was in good demand and is unchanged at 75 cents. Lower grade crepes were the special enquiry of the market and fine and good browns show an advance of ¾ cent.

The following was the course of values:

	In Singapore per Pound. <sup>1</sup>	Sterling Equivalent per Pounds in London.
Sheet, fine ribbed smoked	70c @ 72½c	2/ 0¾ @ 2/ 1½
Sheet, good ribbed smoked	57½ @ 69½	1/ 9¾ @ 2/ 0¾
Sheet, plain smoked	55½ @	1/ 8¾ @
Crepe, fine pale	73 @ 75	2/ 1¾ @ 2/ 2½
Crepe, good pale	60 @ 72½	1/ 10 @ 2/ 1½
Crepe, fine brown	52 @ 60	1/ 7¾ @ 1/ 10
Crepe, good brown	40 @ 50	1/ 4¾ @ 1/ 7½
Crepe, dark	29½ @ 39½	1/ 1¾ @ 1/ 4½
Crepe, bark	25 @ 30½	1/ 1¾ @ 1/ 1½
Scrap, virgin and pressed	28 @	1/ ¾ @
Scrap, loose	21 @ 29½	1/ 10¾ @ 1/ 1½

<sup>1</sup>Quoted in S. S. Currency.

## ARRIVALS AT THE PORT OF NEW YORK.

## PLANTATIONS.

## TO NEW YORK.

	POUNDS.
JANUARY 7. By the <i>Karimata</i> , from Batavia:	
General Rubber Co. ....	1,550,020
F. R. Henderson & Co. ....	45,050
J. T. Johnstone & Co. ....	45,000 1,640,070

## GUAYULE.

## TO NEW YORK.

	POUNDS.
DECEMBER 28. All rail from Eagle Pass, Texas:	
Continental-Mexican Rubber Co. ....	84,700
DECEMBER 31. All rail from Eagle Pass, Texas:	77,250
Continental-Mexican Rubber Co. ....	
JANUARY 15. By the <i>El Almirante</i> , No. 19, from Galveston via Laredo, Texas:	60,400
Continental-Mexican Rubber Co. ....	
JANUARY 22. All rail from Laredo, Texas:	59,000
Continental-Mexican Rubber Co. ....	
TO AKRON.	
JANUARY 2. All rail from Eagle Pass, Texas:	
Continental-Mexican Rubber Co. ....	113,100

## CRUDE RUBBER ARRIVALS AT PACIFIC COAST AS REPORTED.

## PLANTATIONS.

[Ports of arrival not given.]

	POUNDS.
DECEMBER 18. By the <i>Takai Maru</i> , from Singapore.	
Rubber Trading Co. ....	145,600
DECEMBER 18. By the <i>Suwa Maru</i> , from Singapore.	
Rubber Trading Co. ....	232,960
JANUARY 17. By the <i>Huah Wu</i> , from the Far East:	
J. T. Johnstone & Co. ....	67,848
JANUARY 19. By the <i>Shinkoku Maru</i> , from Singapore.	
Rubber Trading Co. ....	168,000
JANUARY 21. By the <i>Ning Chow</i> .	
J. T. Johnstone & Co. ....	51,500
DECEMBER 26. By the <i>Matsuwa Maru</i> , <i>Gemuai Maru</i> , and <i>Kaiso Maru</i> , from the Far East.	
J. T. Johnstone & Co. ....	73,920
DECEMBER 30. By the <i>Suki Maru</i> and <i>Meikai Maru</i> , from the Far East.	
J. T. Johnstone & Co. ....	56,672
JANUARY 4. By the <i>Arabia Maru</i> , from the Far East.	
J. T. Johnstone & Co. ....	116,308

[Dates of arrival not given.]

	POUNDS.
By the <i>Atsuta Maru</i> . From Singapore.	153,000
F. R. Henderson & Co. ....	183,700
By the <i>Korea Maru</i> . From Singapore.	99,950
F. R. Henderson & Co. ....	170,280
By the <i>Monteagle</i> . From Singapore.	338,400
F. R. Henderson & Co. ....	105,480
By the <i>Kaiso Maru</i> . From the Far East.	266,580
Fred Stern & Co. ....	11,200 1,250,180
By the <i>East Wing</i> . From the Far East.	589,120
Fred Stern & Co. ....	102,960 692,080
AT SAN FRANCISCO.	
DECEMBER 18. By the <i>Vondel</i> . From Batavia.	828,000
General Rubber Co. ....	972,400
DECEMBER 21. By the <i>Rindjani</i> . From Batavia.	112,600
General Rubber Co. ....	11,200 1,250,180
DECEMBER 26. By the <i>Tenyo Maru</i> . From Singapore.	173,934
General Rubber Co. ....	83,600
Meyer & Brown. ....	134,400
Fred Stern & Co. ....	105,480 2,260,360

	POUNDS.
DECEMBER 29. By the <i>Easterling</i> . From Singapore.	
Meyer & Brown. ....	351,680 743,614
F. R. Henderson & Co. ....	280,000
General Rubber Co. ....	
DECEMBER 30. By the <i>Easterling</i> . From Singapore.	
F. R. Henderson & Co. ....	1,688,960
General Rubber Co. ....	465,920
Fred Stern & Co. ....	109,080
General Rubber Co. ....	183,600
General Rubber Co. ....	318,960
F. R. Henderson & Co. ....	132,000
United States Rubber Co. ....	1,533,960 2,128,680
DECEMBER 30. By the <i>Suwa Maru</i> , from Singapore, via Yokohama:	
Rubber Trading Co. ....	216,900
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:	
Charles T. Wilson Co. ....	69,660
United States Rubber Co. ....	185,760
Aldens' Successors, Limited. ....	5,940
Robinson & Co. ....	121,140
L. Littlejohn & Co. ....	181,960
Ed. Maurer, Inc. ....	102,420
Meyer & Brown. ....	67,500
Rubber Importers & Dealers Co. ....	177,660
Poel & Kelly. ....	258,480 1,070,540
DECEMBER 30. By the <i>Easterling</i> , from Penang via Kobe:	
F. R. Henderson & Co. ....	35,100
Robinson & Co. ....	4,320
W. R. Grace & Co. ....	43,380 82,800
DECEMBER 30. By the <i>Easterling</i> , from Port Swettenham, via Kobe:	
Robinson & Co. ....	27,540
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:	
Rubber Trading Co. ....	175,860
Robinson & Co. ....	306,000
Poel & Kelly. ....	87,480 569,340

## COMPARATIVE HIGH AND LOW RUBBER SPOT PRICES.

	January.
Plantations:	
First latex crepe. ....	\$0.58 @ 0.52
Smoked sheet ribbed. ....	.56 @ .51 .58 @ .50
Paras:	
Upriver fine. ....	.61 @ .58½
Upriver coarse. ....	.36 @ .34 .42 @ .37 .53 @ .50
Islands, fine. ....	.54 @ .49 .51 @ .47 .70 @ .67
Islands, coarse. ....	.36 @ .22½ .26½ @ .24½ .36 @ .32
Cameta. ....	.23 @ .23 .26½ @ .24½ .35 @ .33

\*Figured only to January 26.

## CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

[The Figures Indicate the Weight in Pounds.]

## PARAS.

	Fine. Medium. Coarse. Caucuo. Cameta. Totals.
ALDEN'S Successors, Limited. ....	64,073
HAGEMAYER & BRUNN. ....	11,200 67,200 78,400
F. R. HENDERSON & CO. ....	129,460 75,670 259,990
PELL & DUMONT, INC. ....	22,398 168,562 235,758
JANUARY 4. By the <i>Sergipe</i> , from Para and Manaos.	
ALDEN'S Successors, Limited. ....	44,140
HAGEMAYER & BRUNN. ....	201,600
H. A. ASTLETT & CO. ....	138,000 98,000 137,500 468,500
MEYER & BROWN. ....	376,320 44,800
GENERAL RUBBER CO. ....	26,880
FRED S. DUMONT, INC. ....	23,572
F. R. HENDERSON & CO. ....	15,300
JANUARY 6. By the <i>George W. Elsey</i> , from Para.	
H. A. ASTLETT & CO. ....	140,000 45,000 11,000 120,000 33,000 349,000
GENERAL RUBBER CO. ....	
F. R. HENDERSON & CO. ....	57,800

	POUNDS.
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:	
Firestone Tire & Rubber Co. ....	221,760
TO NEW YORK.	
DECEMBER 16. By the <i>Andes Maru</i> , from Penang, via Yokohama:	
POEL & KELLY. ....	14,760
DECEMBER 23. By the <i>Grayson</i> , from Singapore, via Shanghai:	
ALDEN'S Successors, Limited. ....	30,420
THE BOSTON INSULATED WIRE & CABLE CO. ....	3,960
CURRY, McPHILLIPS & CO. ....	109,080
F. R. HENDERSON & CO. ....	318,960
J. T. JOHNSTONE & CO. ....	132,000
UNITED STATES RUBBER CO. ....	1,533,960 2,128,680
DECEMBER 24. By the <i>Suwa Maru</i> , from Singapore, via Yokohama:	
RUBBER TRADING CO. ....	216,900
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:	
CHARLES T. WILSON CO. ....	69,660
UNITED STATES RUBBER CO. ....	185,760
ALDEN'S SUCCESSORS, LIMITED. ....	5,940
ROBINSON & CO. ....	121,140
L. LITTLEJOHN & CO. ....	181,960
ED. MAURER, INC. ....	102,420
MEYER & BROWN. ....	67,500
RUBBER IMPORTERS & DEALERS CO. ....	177,660
POEL & KELLY. ....	258,480 1,070,540
DECEMBER 30. By the <i>Easterling</i> , from Penang via Kobe:	
F. R. HENDERSON & CO. ....	35,100
ROBINSON & CO. ....	4,320
W. R. GRACE & CO. ....	43,380 82,800
DECEMBER 30. By the <i>Easterling</i> , from Port Swettenham, via Kobe:	
ROBINSON & CO. ....	27,540
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:	
RUBBER TRADING CO. ....	175,860
ROBINSON & CO. ....	306,000
POEL & KELLY. ....	87,480 569,340
TO SEATTLE, WASH.	
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:	
ALDEN'S SUCCESSORS, LIMITED. ....	78,200
ROBINSON & CO. ....	3,960
J. T. JOHNSTONE & CO. ....	188,820
L. LITTLEJOHN & CO. ....	256,500
RAW PRODUCTS CO. ....	36,000
FRED. STERN & CO. ....	173,340
MITSUI & CO., LIMITED. ....	495,180
UNITED MALAYSIAN RUBBER CO. ....	60,480 1,292,480

<sup>1</sup>Footnote.—The figures under this head and under Crude Rubber Arrivals at Pacific Coast as Reported, have been obtained from different sources; repetitions may, therefore, occur.

<sup>2</sup>Arrived at Tacoma.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Penang, via Kobe:		
F. R. Henderson & Co. ....	19,980	
J. T. Johnstone & Co. ....	85,860	105,840

352 cases shortshipped.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Port Swettenham, via Kobe:		
Aldens' Successors, Limited... 7,560		
Robinson & Co. .... 4,860	12,420	

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang and Singapore, via Kobe:		
Mitsui & Co., Limited.... 108,180		
Poel & Kelly .... 24,300		
L. Littlejohn & Co. .... 99,540		
Thornton Rubber Co., Limited.... 11,520		
Dunlop Tire & Rubber Goods Co., Limited.... 52,200	295,740	

POUNDS.		
JANUARY 19. By the <i>Kamo Maru</i> , from Colombo, via Yokohama:		
Poel & Kelly .... 22,680		
TO TACOMA, WASH.		

POUNDS.		
DECEMBER 23. By the <i>Grayson</i> , from Singapore, via Shanghai:		
L. Littlejohn & Co. .... 190,440		
United Malaysian Rubber Co., Limited.... 40,320		
Fred Stern & Co. .... 105,480	336,240	

POUNDS.		
DECEMBER 23. By the <i>Grayson</i> , from Singapore, via Shanghai:		
Hood Rubber Co. .... 408,600		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Hood Rubber Co. .... 235,800		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		

POUNDS.		
Hood Rubber Co. .... 487,800		

<sup>2</sup>Arrived at Tacoma.

#### GUTTA PERCHA.

##### TO NEW YORK.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Innis & Co., Inc. .... 900		

#### CANADA VIA VANCOUVER.

##### PLANTATIONS.

##### TO GRANBY, QUE.

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang:		

POUNDS.		
Miner Rubber Co., Limited.... 8,820		

##### TO GUELPH, ONT.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
The F. E. Partridge Co., Limited.... 30,240		

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		

POUNDS.		
The F. E. Partridge Co., Limited.... 30,240		

##### TO HAMILTON, ONT.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Boston Insulated Wire & Cable Co.... 1,800		

##### TO KITCHENER, ONT.

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		

POUNDS.		
Kaufman Rubber Co., Limited.... 40,320		

##### TO MONTREAL, QUE.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Rubber Importers & Dealers Co.... 39,060		

##### TO SHERBROOKE, QUE.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Panther Rubber Manufacturing Co.... 8,280		

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		

POUNDS.		
Panther Rubber Manufacturing Co.... 53,460		

##### TO TORONTO.

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Singapore, via Kobe:		

POUNDS.		
Van der Linde Rubber Co., Limited.... 45,360		

POUNDS.		
Alexander Macpherson Co.... 30,240		

POUNDS.		
The Goodyear Tire & Rubber Co., Limited.... 50,400		

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Malacca, via Kobe:		

POUNDS.		
Dunlop Tire & Rubber Goods Co., Limited.... 9,960		

POUNDS.		
DECEMBER 30. By the <i>Easterling</i> , from Penang, via Kobe:		

POUNDS.		
The Goodyear Tire & Rubber Co., Limited.... 40,320		

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		

POUNDS.		
Gutta Percha & Rubber, Limited.... 87,480		

POUNDS.		
Van der Linde Rubber Co., Limited.... 35,820		

POUNDS.		
Dunlop Tire & Rubber Goods Co., Limited.... 47,880		

POUNDS.		
The Goodyear Tire & Rubber Goods Co., Limited.... 93,060		
American Express Co.... 120,420	384,660	

#### TO VANCOUVER.

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Penang, via Kobe:		
Hercules Rubber Co., Limited.... 12,600		

POUNDS.		
DECEMBER 31. By the <i>Shinkoku Maru</i> , from Singapore, via Kobe:		
Rawling, Davis & Co.... 45,900		

#### SAN FRANCISCO.

##### PLANTATIONS.

POUNDS.
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## EXPORTS OF INDIA RUBBER MANUFACTURES FROM THE UNITED STATES DURING THE MONTH OF NOVEMBER, 1918. (BY COUNTRIES.)

EXPORTED TO	Belting, Hose and Packing.		Boots.		Shoes.		Druggists' Rubber Sundries.		Automobile.		Tires.		All Other Manufactures of India Rubber.		Total Value	
	Pounds.	Value.	Pairs.	Value.	Pairs.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.		
	Europe:															
Denmark																
France			64,342	\$250,341							144,467	\$102,365				
Italy	45,277	\$17,386	1	8			43	\$25	9,807	4,396			16,149	21,318		
Norway													719	529		
Portugal													28	45	2,059	
Spain													14,743	3,246	3,246	
Switzerland							580	651	43,009	38,881		1,357	\$2,467		2,467	
England	15,006	6,584											37,978	32,797	78,913	
Totals, Europe	60,283	\$23,970	64,343	\$250,349			623	\$676	198,858	\$147,656	1,357	\$2,467	77,218	\$63,672	\$488,790	
NORTH AMERICA:																
British Honduras	105	\$46	4,030	\$14,881	19,201	17,619	18,107	20,577	21,623	20,861	8,798	4,264	176,311	160,035	273,835	
Canada	64,434	35,598			49	50	11	11	747	764			65	128		
Guatemala	571	265											158	274	1,695	
Costa Rica	1,603	742											180	133	2,488	
Honduras	136	100	24	48									1,617	917	2,161	
Nicaragua	362	273			229	399	322		189	249	383					
Panama	5,971	1,282	17	105	3,478	2,974	510	402	16,550	13,867	9,050	3,612	5,539	4,077	28,319	
Salvador	379	510			346	865	663	6,307	101,526	135,558	7,380	4,635	11,321	10,299	211,000	
Mexico	60,406	53,192	70										40	64	259	
Miquelon, Langley, etc.													4,475	3,132	22,503	
Newfoundland and Labrador	4,824	3,571	732	1,909	13,899	9,868	73	82	4,834	3,940						
West Indies																
British:																
Barbados	626	400											134	170	4,579	
Jamaica	720	400											1,349	781	2,297	
Trinidad and Tobago	513	262			354	398	491	806	14,921	17,760	253	211	1,397	1,375	20,812	
Other British West Indies	593	217			156	152	109	108	1,996	3,225	136	46	123	45	3,793	
Cuba	57,817	33,459	898	657	9,123	8,266	4,863	8,672	242,044	235,057	14,300	8,881	58,954	42,235	337,237	
Danish West Indies	12	18						4	3	573	660		72	34	715	
Dutch West Indies	48	20			1	1	43	48	288	328	119	137	278	222	756	
French West Indies	176	97			156	128	5	8	6,594	5,176	620	131	291	100	5,640	
Haiti	599	327					1	2	2,638	3,462	37	42	3,846	646	4,479	
Dominican Republic	2,848	1,731			636	701	222	241	4,244	5,792	981	1,264	1,213	1,170	10,899	
Totals, North America	202,017	\$134,110	5,771	\$17,956	50,693	\$43,477	30,918	\$38,666	425,226	\$457,105	43,472	\$24,137	267,704	\$226,160	\$941,611	
SOUTH AMERICA:																
Argentina	39,724	\$16,538						1,039	\$2,907	137,295	\$154,904			17,869	\$23,217	\$197,566
Bolivia	11,054	8,951			36	421				12,756	14,662	13	\$35	472	455	24,124
Brazil	6,416	4,863			3,251	1,920	3,389	3,414	48,945	40,584	1,447	843	5,625	8,652	60,276	
Chile	49,926	32,846			3,024	2,763	514	860	74,217	85,589	16,915	8,139	15,246	11,027	141,224	
Colombia	2,421	2,220			33	31	136	249	2,942	3,427	1,527	682	2,090	1,292		
Ecuador	1,100	437							2,475	4,221			448	749	5,407	
British Guiana	783	636			2,602	2,493	956	1,001	11,908	12,546	90	45	573	1,239	17,960	
Dutch Guiana	198	13					23	23	550	640			26	23	676	
Paraguay								319	449	20,831	29,226	1,046	750	5,284	5,540	40,896
Peru	6,788	4,931											56	117		
Uruguay	623	469						864	1,504	9,420	12,200	75	150	2,329	2,083	16,406
Venezuela																
Totals, South America	119,035	\$71,904			8,946	\$7,248	7,240	10,407	321,339	\$357,999	21,113	\$10,644	50,018	\$54,394	\$512,556	
ASIA:																
China	6,762	\$7,351			2,733	\$1,997	429	\$509	9,020	\$15,306			2,041	\$1,805	\$26,968	
Chosen	50	51												51		
British India	9,846	7,079			1,613	1,354	2,810	3,331	10,412	5,658	30	\$56	7,294	5,655	23,133	
Straits Settlements					576	656	92	80					1,175	1,199	1,935	
Dutch East Indies	12,690	14,345					608	1,865	73,348	43,011	2,163	2,700	8,322	13,039	74,960	
French East Indies	3,195	1,464	204	\$896	1,582	1,264	25	21	6,296	7,847		780	333		1,797	
Hongkong													604	595	10,623	
Japan	23,007	9,835	312	2,705	7,664	5,898	587	774	8,397	9,365	450	350	33,171	26,697	55,624	
Russia in Asia					6	6		39	45						6	
Siam															45	
Totals, Asia	55,550	\$40,125	516	\$3,601	14,174	\$11,175	4,590	\$6,625	107,473	\$81,187	3,423	\$3,439	52,607	\$48,990	\$195,142	
OCERANIA:																
Australia	95,532	\$54,073	1,204	\$2,930	17,174	\$10,855			59,418	\$76,706	15,771	\$13,949	31,451	\$25,110	\$183,623	
New Zealand	13,207	8,842	384	1,387			837	\$945	25,178	38,010			18,284	16,290	65,474	
Other British Oceania									111	172			42	267	439	
French Oceania	375	399							150	145			3	3	547	
German Oceania									228	298			1	1	299	
Philippine Islands	21,884	15,089	36	79	28,876	23,032	1,131	2,596	73,599	29,168	4,746	2,127	36,582	22,282	94,373	
Totals, Oceania	130,998	\$78,403	1,624	\$4,396	46,050	\$33,887	1,968	\$3,541	158,684	\$144,499	20,517	\$16,076	86,363	\$63,953	\$344,755	
AFRICA:																
British West Africa													25	\$54	\$54	
British South Africa	106,127	\$50,361	227	\$794	1,355	\$1,315	456	\$526	126,062	\$79,577	1,934	\$1,105	34,763	20,449	154,127	
British East Africa	615	257							122	165			32	18	440	
Canary Islands													36	42	42	
Madagascar									332	565					565	
Portuguese Africa	708	682							64	92			70	85	859	
Totals, Africa	107,450	\$51,300	227	\$794	1,555	\$1,315	456	\$526	126,580	\$80,399	1,934	\$1,105	34,926	\$20,648	\$156,087	
Totals	675,333	\$399,812	72,481	\$277,096	121,418	\$97,102	45,795	\$60,441	1,338,160	\$1,268,845	91,816	\$57,868	568,836	\$477,817	\$2,638,981	

(Compiled by the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C.)

## EXPORTS OF INDIA RUBBER FROM PARA, MANAOS, AND IQUITOS DURING NOVEMBER, 1918.

EXPORTERS.	NEW YORK.				EUROPE.				GRAND TOTALS.			
	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.
Stowell & Co.	35,531	6,096	13,146	23,634	78,407	44,169					44,169	122,576
General Rubber Co. of Brazil	344,075	34,038	70,625	203,067	651,805	46,092					46,092	697,897
J. Marques	118,603	17,170	291,210	75,740	502,723	40,043						

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
Chamie & Co.	25,500	.....	15,840	41,100	82,440	22,100	.....	.....	.....	22,100	104,540				
Sundries	45,050	.....	24,860	50,000	119,910	.....	.....	.....	.....	.....	119,910				
Totals	871,677	79,170	468,324	606,666	2,025,837	261,215	.....	.....	.....	261,215	2,287,052				
From Manaos	1,008,785	66,389	253,581	541,748	1,870,503	187,950	2,310	.....	.....	190,260	2,060,763				
From Iquitos	22,675	1,258	23,826	35,267	83,026	99,860	.....	.....	.....	99,860	182,886				
Grand Totals	1,903,137	146,817	745,731	1,183,681	3,979,366	549,025	2,310	.....	.....	551,835	4,530,701				

(Compiled by Stowell &amp; Co., Pará, Brasil.)

## EXPORTS OF INDIA RUBBER FROM PARA AND MANAOS DURING SEPTEMBER, 1918.

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
J. Marques	162,109	.....	193,124	63,241	418,474	63,347	.....	.....	.....	63,347	481,821				
General Rubber Co. of Brazil	102,196	10,337	41,053	86,171	246,757	.....	.....	.....	.....	.....	246,757				
Suarez, Filho & Co.	132,719	.....	.....	12,476	145,195	.....	.....	.....	.....	.....	145,195				
G. Fradelizi & Co.	50,749	331	30,462	30,387	111,929	.....	.....	.....	.....	.....	111,929				
Stowell & Co.	43,746	21,944	22,177	4,082	91,949	.....	.....	.....	.....	.....	91,949				
Adelbert H. Alden, Limited	.....	.....	8,209	25,922	34,131	.....	.....	.....	.....	.....	34,131				
Sundry shippers	22,783	.....	5,000	.....	27,783	.....	.....	.....	.....	.....	27,783				
	521,302	32,612	300,025	222,279	1,076,218	63,347	.....	.....	.....	63,347	1,139,565				
From Manaos	330,750	112,594	149,098	255,696	848,138	.....	.....	.....	.....	.....	848,138				
Totals	852,052	145,206	449,123	477,975	1,924,356	.....	.....	.....	.....	.....	1,987,703				
From Manaos to South	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20,604				
From Para to South	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49,420				

2,057,727

## EXPORTS OF INDIA RUBBER FROM PARA AND MANAOS DURING OCTOBER, 1918.

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
Suarez, Filho & Co.	25,390	.....	60,315	.....	60,315	38,487	.....	.....	.....	38,487	98,802				
J. Marques	25,390	.....	.....	.....	25,330	39,140	.....	.....	.....	39,140	64,470				
General Rubber Co. of Brazil	.....	.....	.....	.....	.....	61,911	.....	.....	.....	61,911	61,911				
Stowell & Co.	.....	.....	.....	.....	.....	50,000	.....	.....	.....	50,000	50,000				
Adelbert H. Alden, Limited	.....	.....	.....	.....	.....	35,123	.....	.....	.....	35,123	35,123				
G. Fradelizi & Co.	1,360	.....	24,331	42,573	68,244	20,131	.....	.....	.....	20,131	20,131				
Sundry shippers	.....	.....	.....	.....	.....	22,294	.....	.....	.....	22,294	22,294				
	26,690	.....	84,646	42,573	153,909	267,086	.....	.....	.....	267,086	420,995				
From Manaos	.....	.....	.....	.....	.....	185,297	2,720	8,269	66,654	262,940	262,940				
Totals	26,690	.....	84,646	42,573	153,909	452,383	2,720	8,269	66,654	530,026	683,935				

(Compiled by Adelbert H. Alden, Limited, Pará, Brasil.)

## EXPORTS OF INDIA RUBBER FROM MANAOS DURING SEPTEMBER, 1918.

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
Stowell & Co.	155,585	32,207	17,092	117,430	322,314	105,167	.....	.....	.....	105,167	427,481				
J. A. Mendes & Co.	47,586	38,500	133,500	100,000	319,586	30,940	.....	.....	.....	30,940	350,525				
Higson & Fall	.....	.....	.....	.....	.....	60,407	566	98	.....	61,071	61,071				
Tancredo, Porto & Co.	.....	.....	.....	.....	.....	50,000	.....	.....	.....	50,000	50,000				
General Rubber Co. of Brazil	.....	.....	.....	.....	.....	11,979	11,979	24,080	3,967	193	28,240				
Moraes, Carneiro & Co.	.....	.....	.....	.....	.....	20,060	.....	.....	.....	20,060	40,060				
Adelbert H. Alden, Limited	1,319	51	1,107	17,523	20,000	24,140	.....	.....	.....	24,140	25,255				
J. G. Araujo	4,060	.....	420	1,132	5,612	.....	.....	.....	.....	.....	30,867				
Stowell & Sons	.....	.....	.....	.....	.....	12,094	.....	.....	.....	12,094	12,094				
Amorim Irmãos	.....	.....	.....	.....	.....	13,600	6,400	.....	.....	20,000	20,000				
Totals, Manaos	208,550	70,758	152,119	248,064	679,491	340,488	10,933	8,560	66,654	426,635	1,106,126				
In transit, Iquitos	9,948	12,138	2,800	11,084	35,970	.....	.....	.....	.....	.....	35,970				
Totals	218,498	82,896	154,919	259,148	715,461	340,488	10,933	8,560	66,654	426,635	1,142,096				

## EXPORTS OF INDIA RUBBER FROM MANAOS DURING OCTOBER, 1918.

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
J. A. Mendes & Co.	243,554	9,811	43,243	152,374	448,982	.....	.....	.....	.....	.....	448,982				
General Rubber Co. of Brazil	191,891	95,910	33,097	55,349	376,247	.....	.....	.....	.....	.....	376,247				
Tancredo, Porto & Co.	38,397	35,443	22,817	112,754	209,411	.....	.....	.....	.....	.....	209,411				
Stowell & Co.	5,344	31,661	.....	.....	37,005	.....	.....	.....	.....	26,750	63,755				
G. Fradelizi	44,580	.....	3,992	10,643	59,215	.....	.....	.....	.....	.....	59,215				
Moraes, Carneiro & Co.	.....	5,000	.....	13,021	18,021	.....	.....	.....	.....	.....	18,021				
Vianna & Lyra	170	160	270	150	750	.....	.....	.....	.....	.....	750				
Totals, Manaos	523,936	177,985	103,419	344,291	1,149,631	.....	.....	.....	.....	26,750	1,176,381				
In transit, Iquitos	11,330	3,362	5,808	10,562	31,062	.....	.....	.....	.....	.....	31,062				
Totals	535,266	181,347	109,227	354,853	1,180,693	.....	.....	.....	.....	26,750	1,207,443				

## EXPORTS OF INDIA RUBBER FROM MANAOS DURING NOVEMBER, 1918.

NEW YORK.							EUROPE.							GRAND TOTALS.	
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	Fine.	Medium.	Coarse.	Caucho.	TOTALS.	GRAND TOTALS.				
F. A. Mendes & Co.	132,730	8,670	53,000	40,160	234,560	31,170	.....	.....	.....	31,170	265,730				
General Rubber Co. of Brazil	147,046	6,776	10,931	21,000	185,753	30,000	.....	.....	.....	30,000	215,753				
Adelbert H. Alden, Limited	35,020	3,902	270	40,800	79,992	30,600	.....	.....	.....	30,000	110,592				
Stowell & Co.	17,995	24,214	7,703	.....	49,912	.....	.....	.....	.....	.....	49,912				
J. G. Araujo	.....	.....	.....	.....	.....	30,770	.....	.....	.....	30,770	30,770				
Tancredo, Porto & Co.	.....	.....	.....	.....	.....	20,400	.....	.....	.....	20,400	20,400				
Amorim Irmãos	.....	.....	.....	.....	.....	20,000	.....	.....	.....	20,000	20,000				
Totals	332,791	43,562	71,904	101,960	550,217	162,940	.....	.....	.....	162,940	713,157				
In transit, Iquitos	.....	.....	.....	.....	.....	99,860	.....	.....	.....	99,860	99,860				
Grand totals	332,791	43,562	71,904	101,960	550,217	262,800	.....	.....	.....	262,800	813,017				

(Compiled by Stowell &amp; Co., Manaos, Brasil.)

## OFFICIAL INDIA RUBBER STATISTICS FOR THE UNITED STATES CRUDE RUBBER IMPORTS FOR 1918 (BY MONTHS).

## IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

October.

	1917.		1918.		PLANTATIONS	AFRI- PARAS.	CEN- CANS.	GUAY- TRALS.	MATTO- GROSSO.	FOR 1918.	MANICOB AND TOTALS	TOTALS FOR 1917.	
	Pounds.	Value.	Pounds.	Value.									
<b>UNMANUFACTURED—free:</b>													
India rubber:													
From—													
France	49,860	\$30,013	35,206	.....	15,201	710	140	33	16,084	12,788			
Portugal	62,976	35,206	.....	.....	9,715	3,108	68	79	120	18	13,108	10,162	
United Kingdom	2,225,940	1,241,771	5,606	\$1,732	14,999	1,699	5	122	287	2	17,161	18,624	
Canada	35,299	26,766	496,308	202,027	12,703	481	58	37	129	17	13,425	13,000	
Central America	57,145	24,290	16,655	7,645	13,783	2,019	174	189	123	.....	16,288	18,411	
Mexico	42,199	23,546	269,884	107,913	21,787	2,146	10	12	60	109	24,124	15,096	
Brazil	2,866,072	850,875	2,253,060	813,208	13,657	2,260	28	88	59	.....	16,092	12,676	
Peru	697,958	278,134	9,520	2,285	8,473	1,744	61	32	111	.....	10,421	17,290	
Other South America	93,109	44,432	66,007	25,636	4,613	513	124	29	74	.....	5,353	13,664	
British East Indies	21,463,540	12,762,499	9,970,526	3,927,055	7,299	1,958	9	93	.....	.....	9,509	14,850	
Dutch East Indies	5,572,930	3,208,450	1,325,809	537,770	3,051	150	7	155	.....	.....	3,363	13,611	
Other countries	98,194	59,284	808,336	311,201	7,786	3,298	5	18	85	.....	11,292	12,770	
Totals	33,265,222	\$18,585,266	15,221,711	\$5,936,466	Totals	133,167	20,086	730	762	1,329	146	156,220	172,942

(From figures compiled by The Rubber Association of America, Inc.)

## UNITED KINGDOM RUBBER STATISTICS.

## IMPORTS.

November.

	1917.		1918.		UNMANUFACTURED—	Crude rubber:	From—					
	1917.	1918.	1917.	1918.			Pounds.	Value.	Pounds.	Value.	MANICOB AND TOTALS	
Totals, unmanufactured.	4,060,219	\$459,708	1,166,110	\$174,256			Dutch East Indies	1,432,500	£356,600	176,185	£41,433	
Manufactured—dutable:							French West Africa	68,500	6,570	13,600	1,621	
India rubber and gutta percha		\$47,656	.....	\$24,462			Gold Coast	194,100	11,926	81,400	4,805	
India rubber substitutes		7,398	44,800	6,828			Other countries in Africa	1,186,400	123,344	244,900	18,512	
EXPORTS OF DOMESTIC MERCHANDISE.							Peru	258,600	25,517	.....	.....	
MANUFACTURED—							Brazil	4,097,700	576,672	770,500	107,240	
Automobile tires <sup>1</sup>		\$1,398,169	794,869	930,204			British India	160,100	20,102	250,700	31,527	
All other tires <sup>1</sup>		95,189	41,371	39,661			Straits Settlements and dependencies, including Labuan	1,937,600	271,605	3,434,000	402,775	
Scrap and old		125,488	25,622	336,961			Federated Malay States	1,333,800	165,188	1,681,400	201,328	
Reclaimed		369,250	57,452	238,325			Ceylon and dependencies	2,082,000	260,395	1,015,500	116,872	
Belting, hose and packing <sup>1</sup>		343,962	833,888	404,223			Other countries	347,700	51,173	856,500	101,589	
Rubber boots <sup>1</sup> —pairs		309,269	928,245	97,163			Totals	13,099,000	£8,705,100	1,688,677	£1,027,702	
Rubber shoes <sup>1</sup> —pairs		83,799	57,500	254,427			Waste and reclaimed	166,000	1,206	14,900	523	
Druggists' rubber sundries <sup>1</sup>		66,092	49,297	52,492			Totals	13,265,000	£1,689,883	8,720,000	£1,028,225	
Other rubber manufacturers <sup>1</sup>		621,486	577,079	496,782			Gutta percha	1,053,000	164,678	1,244,100	236,534	
Totals, manufactured		\$3,593,717	.....	\$2,611,572								
Fountain pens—number	15,749	13,313	7,318	4,309								

## EXPORTS OF FOREIGN MERCHANDISE.

UNMANUFACTURED—				
India rubber	412,869	251,782	97,974	41,086
Gutta percha	21,105	3,400	.....	.....
Totals, unmanufactured.	433,974	\$255,182	97,974	\$41,086

MANUFACTURED—				
India rubber		\$419	.....	\$6,428
Gutta percha		48	.....	.....
Substitutes, elasticom, etc.		23	.....	.....
Totals, manufactured		\$490	.....	\$6,428

## EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

October.

	1917.		1918.		UNMANUFACTURED—	Crude rubber:	To—					
	1917.	1918.	1917.	1918.			Pounds.	Value.	Pounds.	Value.	MANICOB AND TOTALS	
MANUFACTURED—							Alaska:					
To—							Belting, hose and packing	\$7,629	.....	.....	.....	
Alaska:							Boots and shoes—dozen pairs	5,903	12,041	7,064	14,360	
Belting, hose and packing							Carriage tires and tubes	5,928	.....	319	.....	
Boots and shoes—pairs							Automobile tires and tubes	21,024	11,481	.....	.....	
Other rubber goods							Motorcycle tires and tubes	14,717	22,939	90,661	126,451	
Totals							Bicycle tires and tubes	3,383	15,754	24,124	.....	
To—							Other manufacturers of India rubber	.....	.....	.....	.....	
Hawaii:							Totals	26,395	.....	29,082	.....	
Belting, hose and packing							Waste and reclaimed	.....	.....	.....	.....	
Automobile tires							Totals	113,761	.....	95,982	.....	
Other tires							Gutta percha	40,385	174,916	\$203,453	.....	
Other rubber goods							Totals	130,575	.....	249,518	.....	
Totals												
To—												
Porto Rico:												
Belting, hose and packing												
Automobile tires												
Other tires												
Other rubber goods												
Totals												

<sup>1</sup>Details of exports of domestic merchandise by countries during October, 1918, were given in THE INDIA RUBBER WORLD, January 1, 1919, page 224.

	1917.		1918.		UNMANUFACTURED—	Crude rubber:	To—					
	1917.	1918.	1917.	1918.			Pounds.	Value.	Pounds.	Value.	MANICOB AND TOTALS	
Russia							Russia	1,029,600	£127,208	.....	.....	
France							France	2,246,300	292,182	1,492,900	£167,740	
United States							United States	650,900	72,305	.....	.....	
Other countries							Other countries	584,000	86,934	526,300	60,237	
Totals							Totals	4,510,800	£578,629	2,019,200	£227,977	
Waste and reclaimed							Waste and reclaimed	5,600	352	22,400	900	
Totals							Totals	4,516,400	£578,981	2,041,600	£228,877	
Gutta percha							Gutta percha	16,500	3,626	29,100	5,921	
MANUFACTURED—							Totals	13,305	.....	.....	.....	
Boots and shoes—dozen pairs												
Waterproof clothing												
Insulated wire												
Carriage tires and tubes												
Automobile tires and tubes												
Motorcycle tires and tubes												
Bicycle tires and tubes												
Other manufacturers of India rubber												
Totals												

<sup>1</sup>Details of exports of domestic merchandise by countries during October, 1918, were given in THE INDIA RUBBER WORLD, January 1, 1919, page 224.

## LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

UNMANUFACTURED:	November.			
	1917.		1918.	
Crude rubber:	Pounds.	£.	Pounds.	£.
At—				
London	3,531,100	437,931	4,883	574,572
Liverpool	7,870,000	1,066,308	2,732,200	334,111
Totals	11,401,100	1,504,239	7,615,200	908,683
Waste and reclaimed rubber:				
At—				
London	8,500	109	9,800	401
Liverpool	147,900	916	.....	.....
Totals	156,400	1,125	9,800	401

EXPORTS.				
	1917.		1918.	
Waste and reclaimed rubber:				
From—				
London	688,900	14,299	343,400	14,055
Liverpool	44,500	420	57,100	1,173
Totals	733,400	14,719	400,500	15,228

REEXPORTS.				
	1917.		1918.	
Crude rubber:				
From—				
London	2,532,000	331,888	1,430,100	160,089
Liverpool	1,853,200	233,675	469,000	54,358
Totals	4,385,200	565,563	1,899,100	214,447
Waste and reclaimed rubber:				
From—				
London	5,600	352	22,400	900

## RUBBER STATISTICS FOR ITALY.

UNMANUFACTURED:	Seven Months Ended July 31.			
	1917.		1918.	
India rubber and gutta percha—raw and reclaimed:	Quintals. <sup>1</sup>	Lire. <sup>2</sup>	Quintals.	Lire.
From—				
Great Britain	7,235	.....	4,279	.....
India and Ceylon	6,419	.....	5,217	.....
Straits Settlements	1,630	.....	17,949	.....
French Africa	936	.....	4,214	.....
Belgian Congo	1,065	.....	132	.....
Brazil	15,667	.....	8,895	.....
Other countries	848	.....	1,273	.....
Totals	33,800	37,180,000	41,959	46,154,900
Rubber scrap	6,070	728,400	889	106,680

MANUFACTURED:				
	1917.		1918.	
India rubber and gutta percha—threads:				
From—				
Great Britain	77	.....	97	.....
United States	165	.....	271	.....
Other countries	8	.....	12	.....
Totals	250	550,000	380	836,000
India rubber and gutta percha—sheets:				
Cut sheets	5	11,000	1	2,200
Elastic fabric	1	700	.....	.....
Other kinds, including hard rubber	64	76,800	61	73,200
India rubber and gutta percha—tubes:				
From cut sheets	1	2,200	4	8,800
Elastic fabric	46	41,400	10	63,000
Other forms	6	6,600	1	1,100
Belting	243	267,300	358	393,800
Rubber-coated fabrics—pieces:				
For carding combs	236	306,800	117	152,100
Other forms:				
From—				
Great Britain	37	.....	3	.....
United States	98	.....	.....	.....
Other countries	16	.....	.....	.....
Totals	151	226,500	3	4,500
Boots and shoes—pairs:				
From—				
France	6,035	.....	19,550	.....
United States	12,078	.....	3,399	.....
Other countries	167	.....	419	.....
Totals	18,280	219,360	23,368	280,416
Elastic webbing:				
From—				
France	125	.....	71	.....
Great Britain	40	.....	29	.....
Other countries	18	.....	11	.....
Totals	183	366,000	111	222,000
Clothing and articles for travel.	7	21,000	15	45,000

MANUFACTURED:	Seven Months Ended July 31.			
	1917.		1918.	
Manufactures of India rubber and gutta percha—n. e. s.:				
From cut sheets	43	111,800	19	49,400
Elastic fabric:				
From—				
France	241	.....	62	.....
Great Britain	655	.....	766	.....
Other countries	50	.....	36	.....
Totals	946	1,135,200	864	1,036,800
Tires and tubes:				
From—				
France	2,377	.....	1,448	.....
Great Britain	1,331	.....	443	.....
Other countries	90	.....	.....	.....
Totals	3,798	6,836,400	1,891	3,403,800
Other rubber manufactures:				
From—				
France	503	.....	1,294	.....
Great Britain	945	.....	1,019	.....
United States	1,066	.....	126	.....
Other countries	4	.....	2	.....
Totals	2,518	3,021,600	2,441	2,929,200
Total imports		51,109,060	.....	55,762,896
EXPORTS OF CRUDE AND MANUFACTURED RUBBER.				
Seven Months Ended July 31.				
UNMANUFACTURED:	1917.			
	Quintals.	Lire.	Quintals.	Lire.
India rubber and gutta percha—raw and reclaimed:				
To—				
Spain	330	.....	801	.....
United States	1,972	.....	115	.....
Totals	2,302	805,700	916	320,600
MANUFACTURED:	1918.			
	Quintals.	Lire.	Quintals.	Lire.
India rubber and gutta percha—threads:				
France	61	.....	18	.....
Great Britain	32	.....	.....	.....
Spain	27	.....	.....	.....
Switzerland	16	.....	.....	.....
Argentina	16	.....	.....	.....
Other countries	7	.....	.....	.....
Totals	159	18	349,800	39,600
India rubber and gutta percha—sheets:				
Cut sheets	5	.....	7	.....
Elastic fabrics	14	.....	21	.....
Insulated wire	1	.....	.....	.....
Other forms, including hard rubber	64	64,000	20	20,000
India rubber and gutta percha—tubes:				
From cut sheets	1	.....	3	.....
Elastic fabric	130	.....	86	.....
Other forms	212	201,400	65	61,750
Belting	11	11,000	36	36,000
Rubber-coated fabrics—pieces	136	163,200	38	45,600
To—				
France	8	.....	6	.....
Greece	29	.....	98	.....
Spain	49	.....	9	.....
Switzerland	276	.....	20	.....
Egypt	48	.....	39	.....
Argentina	185	.....	71	.....
Brazil	401	.....	186	.....
Chile	44	.....	34	.....
Cuba	42	.....	23	.....
Other countries	98	.....	58	.....
Totals	1,180	2,242,000	544	1,033,600
Clothing and articles for travel.	26	72,800	3	8,400
Manufactures of rubber and gutta percha—n. e. s.:				
From cut sheets:				
To—				
Great Britain	3	.....	39	.....
Argentina	18	.....	2	.....
Uruguay	8	.....	4	.....
Other countries	1	.....	.....	.....
Totals	30	66,000	45	99,000
Elastic fabric:				
To—				
France	2,206	.....	2,249	.....
Great Britain	6,595	.....	1,108	.....
Spain	127	.....	81	.....
Switzerland	7	.....	.....	.....
India and Ceylon	1,466	.....	441	.....
Dutch East Indies	350	.....	.....	.....
Straits Settlements	1,478	.....	.....	.....
Australia	2	.....	.....	.....
Argentina	874	.....	4	.....
Brazil	4,089	.....	434	.....
Other countries	724	.....	244	.....
Totals	14,918	19,393,400	4,561	5,929,300

MANUFACTURED— Other manufactures:	Seven Months Ended July 31.			
	1917.	1918.	Quintals. <sup>1</sup>	Lire. <sup>2</sup>
To—				
France	165	91		
Great Britain	166	87		
Spain	11	7		
Switzerland	116	109		
Egypt	11	21		
Argentina	329	31		
Brazil	135	17		
Uruguay	61	8		
Other countries	110	71		
Totals	1,104	442	1,104,000	442,000
Total exports	24,699,100	8,214,650		

<sup>1</sup> A quintal = 220.46 pounds.<sup>2</sup> A lira = \$0.193.

### RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

#### IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED— <i>free</i> :	October.			
	1917.	1918.	Pounds.	Value.
Rubber and guita percha, crude caoutchouc or india rubber...	1,242,817	\$707,345	1,777,321	\$568,062
Rubber, recovered	424,204	69,602	301,204	52,140
Hard rubber, in sheets and rods.	1,649	1,378	2,074	1,479
Rubber substitute	38,456	3,669	76,303	9,222
Rubber, powdered, and rubber or guita percha, waste...	146,448	7,971	164,654	27,221
Rubber thread, not covered...	2,459	3,574	6,223	9,225
Totals	1,856,035	\$793,559	2,327,779	\$667,349
Chicle	104,122	42,047	38,108	22,989
MANUFACTURED— <i>dutiable</i> :				
Boots and shoes		47,027		9,966
Belting		10,571		10,997
Waterproof clothing		29,459		6,739
Hose, lined with rubber		8,874		9,806
Mats and matting		68		83
Packing		7,677		12,518
Tires of rubber for all vehicles.		161,826		54,082
Rubber cement and all manufactures of india rubber and guita percha—n. o. p.		84,129		108,745
Hard rubber, unfinished, in tubes for fountain pens...		1,228		1,067
Webbing, over one inch wide...		19,061		27,726
Totals		\$372,220		\$241,729

#### EXPORTS OF DOMESTIC AND FOREIGN RUBBER GOODS.

MANUFACTURED—	October.			
	1917.	1918.	Produce of Canada.	Reexports of Foreign Goods.
Hose	\$18,087		\$12,388	
Boots and shoes	69,736		195,146	
Clothing	911		1,889	
Tires	109,299	3,325	278,254	3,701
Waste	14,996		7,764	
All other—n. o. p.	7,493	3,690	5,409	158,564
Totals	\$220,522	\$7,015	\$500,850	\$162,265
Chicle	30,485	23,011	21,095	25,314

#### THE MARKET FOR RUBBER SCRAP.

##### NEW YORK.

HERE was quite a little business during the month of January although the volume of transactions decreased toward the end of the month. A greater volume of business in tires had been expected. Reclaimers have not been receiving any large orders, but they are looking forward with confidence to a return to pre-war conditions that came to such an abrupt end when the government started its war-time regulations and restrictions. We look forward to considerable exports of reclaims and scrap before long, and as the number of motor trucks in use is sure to increase phenomenally, the scrap market will profit in proportion to the new demand.

BOOTS AND SHOES—More business continues to be done in boots and shoes than in other lines. A month ago prices ranged from

8½ cents to 9 cents. They are now quoted at 8¾ cents, although many carloads have been sold at 9 cents.

INNER TUBES—There has been little demand, practically no transactions being recorded, change in price fractional.

MECHANICALS—No inquiries at all, situation as stagnant as it could be, prices unchanged.

TIRES—Tire sales have been disappointing. Quotations for mixed remain at 5 cents, same as a month ago. Either no change or fractional change only in other prices.

#### NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

JANUARY 25, 1919.

Prices subject to change without notice.

##### BOOTS AND SHOES.

Arctic tops	.00 1/2 @
Boots and shoes	.08 1/4 @
Trimmed arctics	.07 1/4 @
Untrimmed arctics	.06 1/4 @

##### HARD RUBBER.

Battery jars, black compound	.02 @
No. 1, bright fracture	.25 @
INNER TUBES.	
No. 1, old packing	.22 @
new packing	.24 1/2 @
No. 2	.11 1/4 @ .12
Red	.11 1/4 @ .11 1/2

##### MECHANICALS.

Black scrap, mixed, No. 1	.04 1/2 @
No. 2	.03 1/4 @ .04
Car springs	.04 1/4 @
Heels	.03 1/4 @ .04
Horse-shoe pads	.04 1/4 @ .04 1/2
Hose, air-brake	.05 1/4 @ .05 1/4
fire, cotton lined	.02 1/2 @ .02 1/2
garden	.01 1/4 @ .02

##### Insulated wire stripping, free from fiber.

Matting	.01 1/2 @
Packing	.01 1/2 @
Red scrap, No. 1	.09 1/2 @ .10
No. 2	.07 @ .07 1/2
White scrap, No. 1	.12 @
No. 2	.09 1/2 @ .10

##### TIRES.

PNEUMATIC:	
Auto peelings, No. 1	.10 @ .10 1/2
No. 2	.06 1/2 @ .06 1/2
Bicycle	.04 1/2 @ .04 1/2
Standard white auto.	.05 1/2 @ .05 1/2
Standard mixed auto.	.05 @
Stripped, unguaranteed	.03 1/2 @ .03 1/2
White, G. & G., M. & W. and U. S.	.05 1/2 @ .05 1/2

##### SOLID:

Carriage	.04 1/2 @ .04 1/2
Irony	.01 1/2 @ .01 1/2
Truck	.04 1/2 @ .04 1/2

\*Nominal.

#### THE MARKET FOR COTTON AND OTHER FABRICS.

##### NEW YORK.

A DECLINING market is one where caution is a virtue. Cotton is now over \$80 a bale below the prices of the early part of last September, and everybody is convinced that the tobogganing is far from finished. Labor troubles are spreading in all the textile centers of the United States and Great Britain. Southern stocks are very large and Senators from the cotton-growing states have cabled to President Wilson, asking him to remove all embargoes on the exportation of cotton to non-enemy countries, as well as to permit exports to Germany and Austria.

EGYPTIAN COTTON.—On January 21 the War Trade Board ended all restrictions on the importations of Egyptian cotton. Import licenses are now issued without requiring the endorsement of the bill of lading to the Textile Alliance, Inc. This is fortunate, as Egyptian cotton imports amounted to only 80,000 bales in 1918, whereas the average annual pre-war importations were 200,000 bales.

SEA ISLAND COTTON.—Information from South Carolina, Georgia, and Florida indicates that the Sea Island cotton crop will be negligible the coming season. The amount of Sea Island ginned this season up to January 16 was 41,080 bales as against 88,869 bales last year during the corresponding period, and 113,359 bales the previous year. The government estimate of

the area planted to Sea Island during the past season is 276,000 acres, as against 316,000 acres the previous season, and it figures on 90,000 acres for the coming season.

DUCKS, DRILLS, AND OSNABURGS.—Demand is fairly strong and stocks are low. Mills have not been able to fill their civilian contracts so far. Prices, however, have fallen. Drills, 38-inch 200-yard, were 30½ cents on December 26; they were 27½ cents on January 25. Enameling duck, 38-inch 200 yard, was 31 cents on December 26; it was 29 cents on January 25.

RAINOAT FABRICS.—Cotton cloth purchases by the raincoat trade have been very light, due to the anticipation of lower prices. The market has been steadily declining. Bombazine, 64 by 60, water-repellent, was 17 cents on December 26; it was 14½ cents on January 25. Plaids, 60 by 48, were 16½ cents on December 26; they were 13½ on January 25. Surface prints, 60 by 48, were 16½ cents on December 26; they were 14 cents on January 25.

TIRE FABRICS.—Prices have been going off for the last two or three months, and consequently buyers are hesitating. While the large consumers have stocks, the smaller mills have none. The former, in certain cases, have bought in order to support the market, realizing that a continued depression will eventually result in a disadvantageous situation.

## NEW YORK QUOTATIONS.

JANUARY 25, 1919.

Prices subject to change without notice.

## AIRPLANE AND BALLOON FABRICS:

Wamsutta, S. A. I. L. No. 1, 40-inch.....	yard	.60	©
No. 4, 38½-inch.....	yard	.50	©

## ASBESTOS CLOTH:

Brake lining, 2½ lbs. sq. yd., brass or copper insertion.....	lb.	*.85	©
2½ lbs. sq. yd., brass or copper insertion.....	lb.	*.90	©

## BURLAPS:

32—7-ounce .....	100 yards	8.00	©
32—8-ounce .....	8.50	©	
40—7½-ounce .....	8.80	©	
40—8-ounce .....	9.00	©	
40—10-ounce .....	13.75	©	
40—10½-ounce .....	14.00	©	
45—7½-ounce .....	10.80	©	
45—8-ounce .....	11.00	©	
45—9½-ounce .....	16.50	©	
48—10-ounce .....	17.00	©	

## DRILLS:

38-inch 2.00-yard .....	yard	.27½	©
40-inch 2.47-yard .....	yard	.22½	©
52-inch 1.90-yard .....	yard	.31½	©
52-inch 1.95-yard .....	yard	.30½	©
60-inch 1.52-yard .....	yard	.38½	©

## DUCK:

CARRIAGE CLOTH:			
38-inch 2.00-yard enameling duck.....	yard	.29	©
38-inch 1.74-yard .....	yard	.33½	©
72-inch 16.66-ounce .....	yard	.64½	©
72-inch 17.21-ounce .....	yard	.66½	©

## MECHANICAL:

Hose .....	pound	.62½	
40-inch, 10-ounce .....	lb.	.64½	
Belting .....	lb.	.62½	

## HOLLANDS, 40-INCH:

Acme .....	yard	.30	©
Endurance .....	yard	.33	©
Penn .....	yard	.34	©

## OSNABURGS:

40-inch 2.35-yard .....	yard	.25½	©
40-inch 2.48-yard .....	yard	.24½	©
37½-inch 2.42-yard .....	yard	.24½	©

## RAINOAT FABRICS:

COTTON:			
Bombazine 64 x 60 water-repellent.....	yard	.14½	©
60 x 48 not water-repellent.....	yard	.12½	©
Cashmeres, cotton and wool, 36-inch, tan.....	yard	.85	©
Oxford—blue and black.....	yard	.87½	©
Twill 64 x 72.....	yard	.30	©
64 x 102.....	yard	.35	©
Twill, mercerized, 36-inch, tan and olive.....	yard	.29	©
blue and black.....	yard	.31	©
Tweed .....	yard	.55	©
		.72	

Tweed, printed .....	yard	.18	©	.24
Plaids 60 x 48.....	yard	.13½	©	
56 x 44.....	yard	.13	©	
Repp .....	yard	.37½	©	.45
Surface prints 60 x 48.....	yard	.14	©	
64 x 60.....	yard	.15½	©	

## IMPORTED WOOLEN FABRICS SPECIALLY PREPARED FOR RUBBERIZING

## —PLAIN AND FANCIES:

63-inch, 3½ to 7½ ounces.....	yard	1.15	©	3.25
36-inch, 2½ to 5 ounces.....	yard	.80	©	1.85

## IMPORTED PLAID LINING (UNION AND COTTON):

63-inch, 2 to 4 ounces.....	yard	.90	©	1.70
36-inch, 2 to 4 ounces.....	yard	.52½	©	1.05

## DOMESTIC WORSTED FABRICS:

36-inch, 4½ to 8 ounces.....	yard	.60	©	1.75
36-inch, 3½ to 5 ounces.....	yard	.20	©	.35

## SHEETINGS:

## JACKET:

Delaware .....	yard	.30	©
Schuylkill .....	yard	.32	©

## BILKS:

Canton, 38-inch .....	yard	.34½	©
Schaphe, 36-inch .....	yard	.52½	©

## STOCKINETTES:

## COTTON, 52-INCH:

D—14-ounce .....	yard	.85	©	.90
E—11½-ounce .....	yard	.60	©	.65
F—14-ounce .....	yard	.85	©	.90
G—8-ounce .....	yard	.75	©	.80
H—11-ounce .....	yard	.70	©	.85
I—9-ounce .....	yard	.60	©	.65
Knitback .....	pound	1.75	©	2.00

\*Nominal.

## TIRE FABRICS

## JENCKES SPINNING COMPANY

## PAWTUCKET RHODE ISLAND

## WOOL, 52-INCH:

A-14-ounce	yard	*1.75	●
B-14-ounce	yard	*2.25	●
C-14-ounce	yard	*2.50	●

## TIRE FABRICS:

17 1/4-ounce Sea Island, combed	square yard	1.45	@ 1.55
17 1/4-ounce Egyptian, combed	square yard	1.20	@ 1.30
17 1/4-ounce Egyptian, carded	square yard	1.10	@ 1.25
17 1/4-ounce Peelers, combed	square yard	1.00	@ 1.15
17 1/4-ounce Peelers, carded	square yard	.90	@ 1.05

\*Nominal.

SEA ISLAND COTTON CROP MOVEMENT.  
FROM AUGUST 1, 1918, TO DECEMBER 27, 1918.

	Receipts.	1918-19.	1917-18.
Stock on hand, August 1, 1918—			
Savannah, 15,247; Charleston, 517.....bales		15,764	1,044
Received at Savannah (gross)		6,096	20,670
Received at Charleston		4,909	4,704
Received at Jacksonville		4,136	17,579
Received at Brunswick		.....	
Received at Norfolk		.....	
Totals		30,925	43,997
Less exports		15,614	27,028
Stock December 27, 1918—			
Savannah, 10,679; Charleston, 4,632.....bales		15,311	16,969
Crop in sight at all ports to date		14,661	42,887

## EXPORTS.

To	Great Britain.	Continent.	North Mills.	South Mills.	Total.
From—					
Savannah	144	.....	9,792	728	10,664
Charleston	.....		794	794	4,156
Jacksonville	.....		.....	.....	.....
Brunswick	.....		.....	.....	.....
Norfolk	.....		.....	.....	.....
Totals	144	.....	14,742	728	15,614
1917-18	28	142	25,188	1,670	27,028
	1116	2142	210,446	2942	211,414

\* Increase. <sup>2</sup> Decrease.

(Compiled by John Malloch &amp; Co., Savannah, Georgia.)

## EGYPTIAN COTTON CROP MOVEMENT.

FROM AUGUST 1, 1918, TO NOVEMBER 27, 1918.

To—	1918-1919.	1917-1918.	1916-1917.
Liverpool.....bales	78,113	71,741	79,307
Manchester	38,734	20,738	40,823
Other United Kingdom ports	5,537	.....	.....
Total shipments to Great Britain	122,384	92,479	120,130
To—			
France	702	10,842	11,793
Spain	10,140	.....	.....
Italy	17,270	.....	.....
Switzerland	3,116	20,386	12,272
Norway	.....	.....	15,112
Sweden	.....	.....	9,936
Russia	3,213	.....	65
Greece	.....	.....	.....
Total shipments to Continent	34,441	24,065	38,376
To—			
United States	11,792	13,530	29,974
India	5,411	9,914	3,010
Japan	5,411	.....	.....
Total shipments to all parts	174,028	139,988	191,490
Total crop (interior gross weight), cantars	6,315,841	5,126,199	

<sup>2</sup> A canar equals 98 pounds.

(Compiled by Davies, Benachi &amp; Co.)

## THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS.

## NEW YORK.

REPORTS from all over the United States indicate that even large manufacturers will be buying to meet current needs for some months to come. The market readjustment from war to peace basis is progressing without involving a general lowering of prices. Manufacturers realize that no radical decline in prices of minerals and chemicals is forthcoming and also are feeling the necessity of buying in anticipation of new business on a pre-war schedule of operation.

There is promise of liberal export trading in lithopone, barytes,

aluminum flake, and zinc oxide as soon as freight space is available and considerable development in trade revival is anticipated during the next three months.

The market for all rubber compounding ingredients has, in general, been very inactive during the last month, although there is evidence of spring activity in certain lines.

ANILINE.—This material is in rather light demand at present cut prices from 27 to 30 cents per pound.

BARYTES.—Shows no change.

BENZOL.—The market is dull at 24 to 28 cents per pound.

CARBON TETRACHLORIDE.—Prices during the past month ranged from 15 to 17 cents with no important demand.

LITHARGE has dropped in price one cent per pound but shows little activity.

WHITE LEAD.—There has been little demand for dry white lead. Manufacturers announced a drop of one cent per pound effective for the period from January 15 to June 30.

WHITING stocks are low as usual.

ZINC OXIDE and LITHOPONE are in fair demand without much change in market conditions, although there is promise of active business to come in both materials.

## NEW YORK QUOTATIONS.

JANUARY 25, 1919.

Prices subject to change without notice.

## ACCELERATORS, ORGANIC.

Accelerator N. C. C.	.lb.	.50	●
Accelerator No. 1	.lb.	*.60	●
Accelerene	.lb.	*\$2.62	●
Accelemal	.lb.	.65	●
Aldehyde ammonia crystals	.lb.	1.00	@ 1.15
Aniline oil	.lb.	.27	●
Excellerex	.lb.	.85	●
Hexamethylene tetramine (powdered)	.lb.	1.15	@ 1.25
Paraphenylenediamine	.lb.	3.50	●
Tensolite	.lb.	.60	●
Thiocarbonanilide	.lb.	.50	●
Velocite	.lb.	.50	●

## ACCELERATORS, INORGANIC.

Lead, dry red	.lb.	10 1/4 @	
sublimed blue	.lb.	.08 1/4 @	
sublimed white	.lb.	.08 1/4 @	
white, basic carbonate	.lb.	.09	●
Lead oleate	.lb.	.27	●
Lime, flour	.lb.	.01 1/2 @	
Litharge, domestic	.lb.	.09 1/4 @	.02
English	.lb.	.14	●
sublimed	.lb.	*.11	@ .14 1/4
Magnesium, carbonate	.lb.	.12 1/2 @	
Diatomite	.lb.	.03	●
calcined heavy (Thistle)	.lb.	.11	●
light (Manhattan)	.lb.	.35	●
Magnesium oxide, light	.lb.	.30	●
medium heavy	.lb.	.10	●
Magnesite, calcined, powdered	.lb.	50.00	@

## ACIDS.

Acetic, 28 per cent (bbls.)	cwt.	5.16	●
Glacial, 99 per cent (carboys)	.lb.	.20 1/2 @	
Cresylic, 97-99 per cent, straw color	gal.	1.07	@ 1.12
95 per cent, dark	gal.	.97	@ 1.02
Muriatic, 20 degrees	cwt.	2.05	●
Nitric, 36 degrees	cwt.	6.85	●
Sulphuric, 66 degrees	cwt.	2.10	●

## ALKALIES.

Caustic soda, 76 per cent (bbls.)	.lb.	.07	●
Soda ash (bbls.)	.lb.	.04	●

## COLORS.

Black:			
Bone, powdered	.lb.	.05	●
granulated	.lb.	.09	●
Carbon, black (sacks, factory)	.lb.	.15	●
Drop	.lb.	.06 1/2 @	
Ivory black	.lb.	.16	●
Lambblack	.lb.	.15	●
Oil soluble aniline	.lb.	.75	●
Rubber black	.lb.	.07	●
Blue:			
Cobalt	.lb.	.25	●
Prussian	.lb.	1.10	●
Ultramarine	.lb.	.18	@ .50
Brown:			
Iron oxide	.lb.	.03	@ .05
Ochre, domestic	.lb.	.02	@ .04
imported	.lb.	.05 1/2 @	.08
Sienna, Italian, raw and burnt	.lb.	.06 1/2 @	.15
Umber, Turkey, raw and burnt	.lb.	.05	@ .06
Green:			
Chrome tile	.lb.	.17	●
Oxide of chromium (casks)	.lb.	.90	●

FEBRUARY 1, 1919.]

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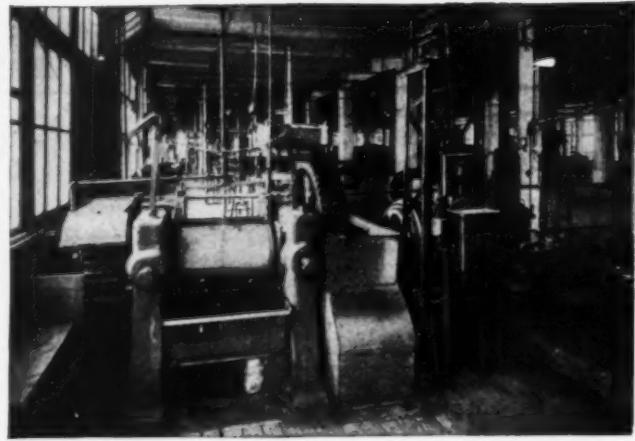


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Detroit, Mich. (G. E. Co. of Mich.) St. Louis, Mo.  
Dallas, Tex. (So. West G. E. Co.)

## Red:

Antimony, crimson, sulphuret of (casks)	.50	lb.	.50	lb.
crimson, "Mephisto" (casks)	.45	lb.	.45	lb.
Antimony, golden, sulphuret of (casks)	.25	lb.	.25	lb.
golden, "Mephisto" (casks)	.25	lb.	.25	lb.
golden sulphuret (States)	.28	lb.	.28	lb.
red sulphuret (States)	.25	lb.	.25	lb.
vermilion sulphuret	.55	lb.	.55	lb.

Arsenic, red sulphide	.35	lb.	.35	lb.
Indian, pure bright	.09	lb.	.09	lb.
Iron oxide, reduced grades	.12	lb.	.12	lb.
pure bright	.16	lb.	.16	lb.
Oil soluble aniline, red	*2.50	lb.	*2.50	lb.

Oximony	*2.00	lb.	*2.00	lb.
Venetian	.18	lb.	.18	lb.
Vermilion, English, pale, medium, dark	.02½	lb.	.02½	lb.

White:				
Aluminum bronze powder	.85	lb.	.85	lb.
C. P. (cases)	.75	lb.	.75	lb.
superior	1.00	lb.	1.00	lb.

Lithopone, imported	None	lb.	None	lb.
domestic	.07½	lb.	.07½	lb.
Fonolith (carloads, factory)	.07½	lb.	.07½	lb.

(less carloads, factory)	.08	lb.	.08	lb.
Zinc oxide, Horsehead (less carload, factory):				

"XX red"	.10½	lb.	.10½	lb.
"Special"	.10½	lb.	.10½	lb.
French process, red seal	.12½	lb.	.12½	lb.
green seal	.12½	lb.	.12½	lb.
white seal	.13½	lb.	.13½	lb.

(States)	.09½	lb.	.09½	lb.
Zinc sulphide, pure	.07½	lb.	.07½	lb.

Yellow:				
Cadmium, tri-sulphate	*2.68	lb.	*2.68	lb.
sulphide, yellow, light, orange	2.00	lb.	2.00	lb.
red	1.85	lb.	1.85	lb.
Chrome, light and medium	.31	lb.	.31	lb.
Ochre, light or dark	.02½	lb.	.02½	lb.
Oil soluble aniline	*2.00	lb.	*2.00	lb.
Zinc chromate	.50	lb.	.50	lb.

## COMPOUNDING INGREDIENTS:

Aluminum flake (bbls, factory, Less 5% carload)	26.00	lb.	26.00	lb.
(sacks factory, Less 5% carloads)	ton		ton	

Aluminum oxide	*.18	lb.	*.18	lb.
Ammonia carbonate, powdered	.12½	lb.	.12½	lb.

Asbestine (bags)	22.50	ton	30.00	ton
Asbestos (bags)	35.00	ton	55.00	ton

Barium, carbonate, precipitated	.07	lb.	.07	lb.
Barytes, pure white	30.00	ton	32.00	ton

off color	20.00	ton	22.00	ton
uniform floated	32.00	ton	35.00	ton

Basofor	.04½	lb.	.04½	lb.
Blanc fixe	.04	lb.	.04	lb.

Bone ash	.06	lb.	.06	lb.
Chalk, precipitated, extra light	.05	lb.	.05	lb.

precipitated, heavy	.04	lb.	.04	lb.
China clay, domestic	15.00	ton	20.00	ton

imported	.02½	lb.	.02½	lb.
Cork flour	.50	lb.	.50	lb.

Cotton linters, clean mill run, f. o. b. factory	None	bals	None	bals
Fossil flour (powdered)	60.00	ton	65.00	ton

Glue, high grade	.36	lb.	.31	lb.
medium	.22	lb.	.22	lb.

low grade	.04	lb.	.04	lb.
Graphite, flake (400 pound bbl.)	.10	lb.	.10	lb.

Ground glass FF, (bbls)	*.03	ton	*.03	ton
Infusorial earth (powdered)	60.00	ton	65.00	ton

(bolted)	.03½	ton	.03½	ton
Mica, powdered	.03½	ton	.03½	ton

Plaster of Paris	3.00	lb.	3.00	lb.
Pumice stone, powdered (bbl.)	.05	ton	.02½	ton

Rotten stone, powdered	.02½	ton	.02½	ton
Rubber flux	*.15	lb.	*.15	lb.

Rub-R-Glu	.20	lb.	.20	lb.
Silex (silica)	22.00	ton	22.00	ton

Soapstone, powdered, domestic	.18	lb.	.18	lb.
Starch, powdered corn (carload, bbls.)	4.27	ton	4.49	ton

(carload, bags)	22.50	ton	22.50	ton
Talc, American	None	ton	None	ton

French				
Tripoli earth, powdered	.01½	ton	.01½	ton

Tyre-lith	80.00	ton	80.00	ton
Whiting, Alba (carloads)	.90	ton	1.00	ton

commercial	1.30	ton	1.30	ton
gilders	1.40	ton	1.40	ton

Paris, white, American	1.75	ton	1.75	ton
English, cliftonite	2.00	ton	2.00	ton

Wood pulp XXX	34.00	ton	36.00	ton










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